



# Pregnant people, inseminators and tissues of human origin: how ectogenesis challenges the concept of abortion

Evie Kendal<sup>1</sup> 

Accepted: 4 November 2020 / Published online: 11 November 2020  
© Monash University 2020

## Abstract

The potential benefits of an alternative to physical gestation are numerous. These include providing reproductive options for prospective parents who are unable to establish or maintain a physiological pregnancy, and saving the lives of some infants born prematurely. Ectogenesis could also promote sexual equality in reproduction, and represents a necessary option for women experiencing an unwanted pregnancy who are morally opposed to abortion. Despite these broad, and in some cases *unique* benefits, one major ethical concern is the potential impact of this emerging technology on abortion rights. This article will argue that ectogenesis poses a challenge to many common arguments in favour of a pregnant woman's right to choose, but only insofar as it highlights that their underlying justifications for abortion are based on flawed conceptions of what the foetus and pregnancy actually are. By interrogating the various interests and relationships involved in a pregnancy, this article will demonstrate that the emergence of artificial gestation need not impact existing abortion rights or legislation, nor definitions of independent viability or moral status.

**Keywords** Ectogenesis · Abortion · Termination of pregnancy · Artificial womb · Legal parenthood · Artificial reproductive technologies · Arts · Moral status

## 1 Introduction

The potential benefits of an alternative to physical gestation are numerous. The use of an artificial womb to gestate a foetus, either from conception (full ectogenesis) or after transfer from a biological womb (partial ectogenesis), could provide a means of procreation for prospective parents currently unable to establish or maintain a physiological pregnancy, in addition to saving the lives of some infants born prematurely (Steiger 2010). Ectogenesis could work to equalise reproductive labour across the

---

✉ Evie Kendal  
ekendal@swin.edu.au

<sup>1</sup> Faculty of Health, Arts and Design, Swinburne University of Technology, Hawthorn, VIC, Australia

sexes, reduce the risks and burdens of gestation for some women (without merely transferring them to surrogates), facilitate foetal surgery and other prenatal therapies, and provide a necessary option for women experiencing an unwanted pregnancy who are morally opposed to abortion (Hendricks 2012; Segers et al. 2020). Despite these broad, and in some cases *unique* benefits, one of the major ethical concerns highlighted in the bioethics scholarship focused on ectogenesis is the potential impact of this emerging technology on abortion rights.

This article will argue that ectogenesis poses a challenge to many common arguments in favour of a pregnant woman's right to choose, but only inasmuch as it highlights that their underlying justifications for abortion are based on flawed conceptions of what the foetus and pregnancy actually are. By interrogating the various interests and relationships involved in a pregnancy, this article will demonstrate that the emergence of artificial gestation need not impact existing abortion rights or legislation, nor definitions of independent viability or moral status.

## 2 Abortion rights and the impact of technology

Women's bodies are sometimes pregnant. So too are the bodies of transgender men. However, Western law and medicine developed with the cisgendered male body the presumed 'default', making the embodied experience of pregnancy a foreign concept. As such, it is unsurprising that legal and medical systems often have difficulty determining how foetuses and pregnant bodies should be treated, as most ethico-legal discussions in clinical practice are predicated on the belief that there will be a single human life existing within each autonomous human subject. Pregnancy is not a rare condition, nor is the desire to terminate an unwanted pregnancy uncommon, yet both states are often subjected to rigorous scrutiny, with access to abortion regulated at a state level, often to the detriment of women's health and safety. The advent of ectogenesis is considered by some to be a threat to hard-won abortion rights, as it challenges the existing definitions of viability that are typically used to draw boundaries for legal termination of pregnancy. As Eric Steiger claims, an artificial womb could render an embryo or foetus 'viable' at any stage of development, 'albeit with technological assistance' (Steiger 2010, p. 146). However, I argue this demonstrates a weakness in the viability criterion for determining the legality of abortion, rather than an insurmountable obstacle to the safe integration of ectogenesis into an abortion-tolerant society.

For Callahan and Knight, viability represents the point at which sustaining the life of a developing infant can be achieved without violating 'its biological mother's right to self-direction and bodily integrity' (Callahan and Knight 1992, p. 226). Viability is already a problematic method of assigning rights to the foetus, as the survival of an infant born prematurely depends heavily on the location in which the birth takes place and whether access to sophisticated neonatal incubation technology is available (Hendricks 2012). Viability is not an intrinsic trait of a foetus once it reaches a certain point in development, but is rather the result of a complex interplay of situational factors, of which advanced technology represents just one. In some jurisdictions, existing humidicribs are able to successfully incubate infants

born at gestational ages for which abortion is available on demand, while in others near-term births are unlikely to survive due to lack of resources. Ectogenesis is not the only technology to challenge the coherence of viability as a threshold for abortion rights. At worst, ectogenesis merely brings the issues regarding viability into sharper focus.

John N. Edwards captures the core issue well when he claims that if ectogenesis became widely available abortions might become ‘obsolete’, being reclassified as ‘early births’ instead (Edwards 1991, p. 352). This introduces a new element to the debate: whether abortion fulfils any purpose beyond terminating an unwanted pregnancy (and with it the dependence of the foetus on the body of the woman carrying it). More important, perhaps, is the question of whether the right to preserve one’s bodily integrity through terminating an unwanted pregnancy carries with it any right to demand the death of the foetus during the process. For Steven Ross, this issue is less about rights and more about having a ‘good reason’ to end the life of the foetus, which he claims one would not have were an artificial womb available to continue gestation after an abortion had taken place: ‘it would seem we could give no good reason for destroying it if its survival elsewhere did not inconvenience us’ (Ross 1982, p. 233). Subscribers to this way of thinking suggest that ectogenesis could satisfy the competing demands of promoting bodily autonomy for pregnant women and preserving foetal life. Ross goes so far as to suggest we ‘ought to be delighted’ were an alternative to foetal death during abortion made possible through ectogenesis, claiming that ‘it would seem nothing short of monstrous to seek to frustrate these means of foetal survival, were they available’ (Ross 1982, p. 237). This argument has been strongly contested by Räsänen (2017), who claims any attempt to force genetic parenthood by requiring the transfer of aborted fetuses into artificial wombs would violate the right not to be a biological parent, the right to genetic privacy, and certain property rights.

Glenn Cohen notes that most arguments justifying abortion focus solely on the right not to become a gestational parent and are ‘justified by a prohibition on invading bodily integrity’, claiming such an argument cannot be used to support a right not to become a genetic parent, in cases where such invasion would not occur (Cohen 2007, p. 1119). While he is thinking here of men whose desire not to become genetic parents cannot be grounds to compel a woman to terminate a pregnancy, the same reasoning could be used to try and force women to transfer their aborted fetuses into ectogenesis chambers to continue gestation artificially. This argument forms part of a popular feminist critique of ectogenesis, focused on its potential to *reduce* rather than *enhance* reproductive options for women, who currently have the ability to avoid genetic parenthood altogether when choosing to terminate a pregnancy (Langford 2008).

I argue that this focus on the possible outcomes of a termination of pregnancy fail to consider the impact of methodological choices. For example, even if we hold that a pregnant woman may not have a right to demand her pregnancy be ended in such a way as guarantees foeticide and the elimination of genetic parenthood, this does not change the fact the woman has a right to choose from among her treatment options, and only some methods of termination will be conducive to foetal transfer to an artificial womb. In a future where ectogenesis is available, it is likely some

women seeking abortions will be delighted, as Ross desires, that there is a way for them to end their pregnancy without also ending the life of the foetus. This might be especially beneficial in cases where the other genetic parent wishes to continue the pregnancy and intends to care for the resultant child. However, it does not hold that women should be coerced into selecting this option, particularly if the required interventions are more burdensome for them, physically or psychologically. This is especially the case when considering early empirical work on the subject indicated many women did not view artificial gestation as an acceptable alternative to terminating an unwanted pregnancy (Cannold 1995). Despite the conservative rhetoric that attempts to cast abortion in this light, what is described here is not the balancing of one person's life against another's convenience, or even one parent's wishes over the other's. In the first case, the foetus is not a person and thus has no competing interests to consider. In the second, parenthood is dependent on the existence of a relationship that never comes into being in the context of a terminated pregnancy. Both of these issues will be explored below.

### 3 The non-existence of the foetal subject and pre-natal fatherhood

Foetuses lack the fundamental characteristics required to establish full moral status or personhood (Callahan and Knight 1992). It is typically understood that foetuses have no desires, interests, conscious awareness, or rationality, and are devoid of moral responsibility or agency. In addition to lacking moral personhood, foetuses typically lack legal personhood; since they cannot be (legally) wronged in the way an autonomous human being can be, any maternal-foetal conflict must logically be resolved in favour of the party possessing legal personhood. Despite the obvious differences between a foetus and a person, Heather Latimer claims the use of imaging technologies, like ultrasonography, have fostered an idealised vision of the foetus as somehow distinct from the pregnant woman's body, a 'free-floating' and independent entity 'with interests and rights of its own that are often imaginable only at the expense of the pregnant woman' (Latimer 2011, p. 322). Dion Farquhar further posits such 'imagery of the fetal astronaut' permeates the right-to-live movement, promoting the mistaken belief that the foetus is an independent subject, rather than an dependent entity *within* a person (Farquhar 1996, p. 163). Many anti-abortion arguments rest on this belief, which attempts to promote the idea of the foetus having rights that might justify imposing restrictions on the pregnant woman's behaviour and choices. In short, such arguments rely on conceiving of the foetus as something that it is not. The foetus is not strictly a parasite or symbiote, but it is definitely not a person. It cannot reliably be considered a potential person either, as not all foetuses will be provided the opportunity to develop into people, either by nature or design, including those who have abnormalities incompatible with life. That there is already a so-called 'paradox' that seeks to justify abortion by appealing to a pregnant woman's bodily autonomy while simultaneously considering non-lethal prenatal injuries caused by maternal behaviours to be morally unjustifiable, demonstrates a fundamental inconsistency in how the foetus is conceptualised (McMahan 2006). Establishing the foetus as an entity with no right to life implies it has low or no

moral status, especially when supporting abortion for any reason. Conversely, blaming pregnant women for harming their foetuses implies a status equal, or some might argue superior, to that of the woman carrying it. These two views are commonly found together and yet are logically incoherent. Again, this problem seems to stem from issues with classifying what the foetus is.

I argue that foetuses are most accurately classified as tissues of human origin that are dependent on a pregnant woman's body for life, possessing varying statistical probabilities of becoming persons that take into account increasing gestational age and the presence of any abnormalities. Despite this potential, such tissues do not possess rights or interests while they remain in the womb, and thus cannot be said to have a right to be transferred into an artificial womb, even if this might promote its survival. The implications of adopting such a classification are explored later.

Another potential stakeholder often brought out in the abortion debate is the genetic 'father'. Even the language here is worth noting, with bioethics scholarship often labelling the relevant parties as pregnant woman, foetus, and biological father. The former term describes a condition, while the latter term denotes a relationship, a relationship I argue cannot exist in the absence of a reciprocal subject. In her discussion of 'ejaculatory fathers', Janice G. Raymond uses the term 'inseminator' to refer to the male genetic progenitor of a developing foetus (Raymond 1994, p. 63). This term highlights a relationship with the pregnant woman, rather than the foetus she is carrying, and may be more appropriate than 'partner' in cases where the relevant parties are not together. An inseminator may have a desire for a pregnancy to continue or be terminated, but they have no compelling interest or right to force either option (Gunsburg 1996). According to Steiger (2010), the woman's 'complete control over termination rights' can be thought to arise from the special investment and effort involved in biological pregnancy. I further argue that the provision of life-sustaining gestational processes gives the pregnant woman the ability to bestow meaning onto the existence of the foetus, e.g. to bring it into relationship with others. As such, the pregnant woman gets to decide whether the life she carries should be treated as a future family member, or whether it represents a collection of cells to be removed from her body. At least until the point of independent viability, the foetus cannot be considered a separate being, and thus its identity is justifiably dependent on the intended choices of the pregnant woman. This claim is not intended to imply such choices are made without reference to social and cultural influences, but rather that the ultimate decision rests with the pregnant woman.

#### 4 The foetus as tissue of human origin

There are a number of ethical implications for considering the foetus predominantly as a tissue of human origin, rather than a potential future person, but first it is necessary to establish that such a classification does not imply the foetus is not worthy of respect. We treat donated tissues and organs and cadavers with respect due to their connection to human lives. Treating the foetus as a genetically non-identical dependent living tissue within a woman's body also does not negate the possibility of the state having an increasing interest in its potentiality as it develops. The statistical probability of a foetus

becoming a person typically increases with gestational age, but considering foetuses on a case-by-case basis allows the state to have a greater interest in a 28 week healthy foetus than a 38 week anencephalic foetus, for example. This is a more nuanced approach than the rigid trimester- or gestational age-based viability criteria currently in use for determining when the state might have an interest in intervening to prevent an abortion (Baker 2009).

Most importantly for this debate, a move to consider foetal transfer to an artificial womb as analogous to tissue donation after surgery, allows for the potentially positive outcome of saving the life of a foetus that would otherwise have been aborted, without justifying an attempt to compel women seeking abortions to avail themselves of this technological alternative. As the foetus does not have any rights, it is not owed a chance of life through foetal transfer. Nevertheless, just as a patient having a hip replacement may choose to beneficently donate their femoral head for use in bone grafts for other patients, so may a woman terminating her pregnancy choose to 'donate' the foetal tissue for artificial gestation and subsequent adoption. We may consider it morally praiseworthy for the orthopaedic surgery patient to promote the interests of others in this way, but few would consider it morally obligatory to donate the tissue, even when it could save a life. Similarly, the option of providing artificial gestation for women seeking to terminate a pregnancy need not impact existing abortion rights, particularly when the methods of termination are likely to be different. Remembering that there is no second patient involved, providing the foetus an opportunity to continue its development outside of the womb can be seen as an altruistic act, but not a necessary one. Any perceived duty to promote the survival of the foetus must reasonably be compared to that of serving as a living donor, except that the foetus does not possess moral subjecthood, whereas the recipient of a bone graft, for example, does. If the latter person can make no demands on the patient for donation, it would be grossly inconsistent to suggest the former non-person can make such demands of the pregnant woman.

This conception of the foetus also has implications for inseminators. While most tissues of human origin originate in one person, the foetus is usually derived from two. This does not impact a woman's right to bodily integrity while pregnant. However, it does suggest that if a woman decides to terminate a pregnancy but consents to her aborted foetus being given a chance of survival through artificial gestation, that the other genetic progenitor be given first right to claim parenthood over the ectogenetic foetus on the basis of their genetic ties. In fact, after the foetus is removed from the body and there are no physiological burdens associated with gestating it, the interests of male and female progenitors start to equalise (Steiger 2010). Assuming there are no compelling grounds to refuse this application, e.g. in the case of rape, the advent of ectogenesis could thus be seen to enhance parental rights for prospective fathers as well.

## 5 Practical application

At least before the point of independent viability, a pregnant woman has ultimate authority over a foetus existing inside her body. This is in line with her authority over other tissues and organs, extending to how they may be removed, should this

be required. As such, should she choose a foeticidal method of terminating her pregnancy that precludes transfer to an artificial womb, such a choice must be respected. This is because, as in other medical interventions, patient autonomy is paramount. Pregnancy is what it is to the person experiencing it, be that a 'miracle' or a 'mistake', and the goals and methods of a termination of pregnancy can form part of this complex relationship. This goes some way toward explaining why women scheduled for induced abortions may still feel upset after experiencing a spontaneous abortion instead. In such cases, their decision for how their pregnancy would be managed, and ended, was not able to be fulfilled.

Common justifications for the permissibility of abortion can also serve as arguments for why the existence of artificial wombs need not compromise abortion rights. Ectogenesis does not replace the role of abortion in reproductive healthcare, nor is it functionally equivalent. As with other medical and surgical interventions, pregnant women will retain the right to determine the best treatment option for themselves, which may for some involve transferring their foetus to an artificial womb. Physical gestation is best conceived as the biological support of a genetically non-identical living tissue, a condition that may be voluntarily entered into or abandoned through various means. These include the removal of the foetus or placenta, for subsequent destruction or donation.

## 6 Conclusion

In conclusion, while abortion rights are under threat in many countries, the advent of ectogenesis need not exacerbate these tensions. Artificial wombs may well save the lives of some premature infants and foetuses destined for abortion; however, the embodied experience of pregnancy dictates that preserving women's bodily integrity ought to remain the deciding factor on if and how gestation continues. For some women, ectogenesis will represent a valuable alternative to physical gestation and abortion, while for others it will fail to achieve the goals currently met through termination of pregnancy. This suggests that should this technology become available in the future, it will need to be very carefully introduced into the suite of options available in reproductive medicine to ensure it does not increase choice for some while diminishing it for others.

## References

- Baker, J. 2009. A war of words: How fundamentalist rhetoric threatens reproductive autonomy. *University of San Francisco Law Review* 43: 671–702.
- Callahan, J.C., and J.W. Knight. 1992. Women, fetuses, medicine, and the law. In *Feminist perspectives in medical ethics*, ed. H.B. Holmes and L.M. Purdy, 224–239. USA: Indiana University Press.
- Cannold, L. 1995. Women, ectogenesis and ethical theory. *Journal of Applied Philosophy* 12: 55–64.
- Cohen, G. 2007. The right not to be a genetic parent? *Southern California Law Review* 81: 1115–1196.
- Edwards, J.N. 1991. New conceptions: Biosocial innovations and the family. *Journal of Marriage and Family* 53 (2): 349–360.
- Farquhar, D. 1996. *The other machine: Discourse and reproductive technologies*. New York: Routledge.

- Gunsburg, S.L. 1996. Frozen life's dominion: Extending reproductive autonomy rights to in vitro fertilization. *Fordham Law Review* 65: 2205–2239.
- Hendricks, J.S. 2012. Not of woman born: A scientific fantasy. *Case Western Reserve Law Review* 62: 1–47.
- Langford, S. 2008. An end to abortion? A feminist critique of the 'Ectogenetic solution' to abortion. *Women's Studies International Forum* 31: 263–269.
- Latimer, H. 2011. Reproductive technologies, fetal icons, and genetic freaks: Shelley Jackson's *Patchwork Girl* and the limits of the possibilities of Donna Haraway's Cyborg. *Modern Fiction Studies* 57 (2): 318–335.
- McMahan, J. 2006. Paradoxes of abortion and prenatal injury. *Ethics* 116 (4): 625–655.
- Räsänen, J. 2017. Ectogenesis, abortion and a right to the death of the fetus. *Bioethics* 31 (9): 697–702.
- Raymond, J.G. 1994. *Women as Wombs: Reproductive technologies and the battle over women's freedom*. Melbourne: Spinifex Press Pty. Ltd.
- Ross, S. 1982. Abortion and the death of the fetus. *Philosophy and Public Affairs* 11 (3): 232–245.
- Segers, S., G. Pennings, and H. Mertes. 2020. The ethics of ectogenesis-aided foetal treatment. *Bioethics* 34: 364–370.
- Steiger, E. 2010. Not of woman born: How ectogenesis will change the way we view viability, birth, and the status of the unborn. *Journal of Law and Health* 23: 143–171.

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.