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Genome Editing and Ownership Rights of Mother over Unborn Child

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ABSTRACT

The field of biotechnology is progressing day by day. Genome Editing Technology Clustered Regularly Interspaced Short Palindromic Repeats edits the genes that carry diseases and also edits the heritable physical and behavioral characteristics for the production of "designer babies" which poses threats to rights, liabilities of unborn child as well as the ownership of mother. The important legal question arises that if it so that unborn child has right to life and a person but Genome Editing is performed on the Deoxyribonucleic of the embryos, so whether DNA is the subject of ownership of parent and the unborn as a part of the body of mother comes under her possession. Right of ownership entitles the person to exercise a set of rights over his possession. The genome editing requires the changing of Deoxyribonucleic of an embryo. The jurisprudential extension of right of control and custody to the ownership over Deoxyribonucleic is also significant question. This paper aims to analyze the ownership right of mother over her unborn child in the light of Labor Theory of Property. It also aims to study whether the Deoxyribonucleic of a child comes under the domain of bodily ownership of mother and whether the gametes and Deoxyribonucleic are subject matter of ownership and extent of parental authority in decision making. It follows analytical and critical methods of research. This paper concludes that the genetic information is transferred invitationally from generations to generations as it is not a subject matter of ownership. The ownership of mother over child Deoxyribonucleic and her gamete is equivalent for treating unborn child a property and the abridging the child personal rights over its Deoxyribonucleic. This paper suggests that the parent must only have fiduciary duty to safeguard the rights of their unborn child to protect the child right to open future. The Deoxyribonucleic must be included under the realm of personal rights so that no one can intervene in the unique genetic information of the child and its capacity to exercise the potential interests after the birth. And finally, the Genome Editing on embryos for changing of physical characteristics must be treated as eugenics and Genocide.

Key Words: Genome Editing, Ownership Rights of Mother, Unborn Child, Clustered Regularly Interspaced Short Palindromic Repeats, Labour Theory of Property

1. Introduction

The genome editing technology widely known as Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) is turning the wheels of the world by bringing precise changes in the genomes of cells, tissues and human and animal embryos. This technology is able to edit the gene pool and the desirable attributes in the human embryos. In 2015 for the first time this technology was used and experimented by scientists then in 2018 Chinese Scientist He Jiankui produced twin genetically edited embryos who are now born twin girls. The Nobel Prize honored technology has stirred the debates both in the field of law and science. This technology is grasping the wide spread attention as a cost-effective method for inserting the desirable attributes in the human embryos for the purpose to produce “designer babies” (Melillo, 2017) and editing out the undesirable health and hereditary attributes on the parental choices. The not extensively tested technology as per scientific researches poses an imminent threat to life of the unborn. Albeit the popularity of CRISPR genetic editing of unborn child, the legal and jurisprudential perspective of absolute intervention in the rights of an entity and the challenges of infringement to the rights of unborn child arising from the application of this technology are still unidentified in past writings.

In the terms of law, an entity is either a person or a property. As per Salmond “Ownership in its most comprehensive signification, denotes the relation between the person and right that is vested in him...” (Salmond, 1913/2023, p. 220). Studies have established the status of unborn child as a person and rights of unborn with special reference to Genome Editing. The important legal question is that if it so that unborn child has right to life and a person but Genome Editing is performed on the Deoxyribonucleic (DNA) of the embryos, so whether DNA is the subject of ownership of parent and the unborn as a part of the body of mother comes under her possession. Right of ownership entitles the person to exercise a set of rights over his possession. In Jurisprudence, the John Locke Theory of Labor and Property provides that doing labor on a thing grants ownership rights over the object. From 19th century the rights of ownership of mother over child was established due to the labor in gestation. The genome editing requires the changing of DNA of an embryo. The jurisprudential extension of right of control and custody to the ownership over DNA is also significant question. This paper aims to analyze the ownership right of mother over her unborn child in the light of Labor Theory. It also aims to study that whether the DNA of a child comes under the domain of bodily ownership of mother and whether the gametes and DNA are subject matter of ownership and extent of parental authority in decision making.

2. Genome Editing: Background, Practical Applications and Outcomes of the CRISPR Technology

2.1. Background of CRISPR

Gene editing technology is used to remove, alter and edit living creatures’ genes. The technology of Clustered Regularly Interspaced Short Palindromic commonly terms as CRISPR stirs the world with contentious and advanced genome editing technology. The editing is used for therapeutic purposes genetic modifications in germline cells (Charpentier, nd). A diversity of genetic edits can be made with CRISPR/Cas9, including, CRISPR/Cas9 Gene Editing which can be shown as:

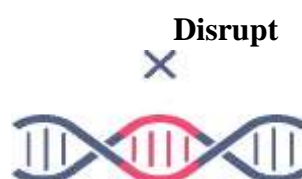


Figure .1. By one guide “RNA”, CRISPR/Cas9 can make a single cut; which is repaired by natural procedures, which can outcome in the addition or deletion of base pairs, and leads towards gene inactivation.

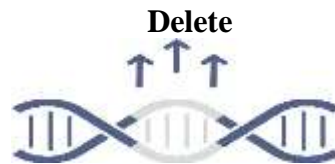


Figure 2. By means of two guide RNAs that target distinct sites, a section of DNA can be removed; the two distinct ends are linked together after cleavage while the intervening order is removed.

Correct or Insert

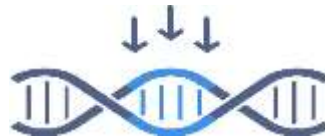


Figure 3. through addition of a genetic model together with the CRISPR/Cas9 machinery can allow the cell to make correction a gene or add a new gene.

Source figures1-3: available on: <https://crisprtx.com/gene-editing>

By going deeper, it is identified that the scientific world was eager with the usages of cost-effective CRISPR technology. Starting from editing of human cells in 2013 by Feng Zhang and the team of Broad Institute the first use of editing in human embryos is traced back to 2017, when institute Oregon Health and Science University (OHSU) claimed cure of heart failure (Chauvin, 2018).

2.2 Work Flow and Practical Application

In medical term to define the working of CRISPR technology it is usually referred to as “molecular scissors” or “genetic scissors” (Selokar, 2018). When the virus attacks the bacteria, the bacteria send the enzyme and that enzyme destroys the virus and thus stores the CRISPR DNA sequence in sparse. The next time bacteria are attacked with virus it matched the sequence of the attacking DNA with the stored one and thus destroys the virus. The Cas9 is the naturally occurring protein and with the CRISPR-CAS9. The Cas9 enzyme cuts alters or inserts genomic material in DNA strands but it needed the direction and accordingly the guiding molecule (gRNA) guides the Cas9 enzyme to the targeted site into the targeted cell (Koo & Kim, 2017).

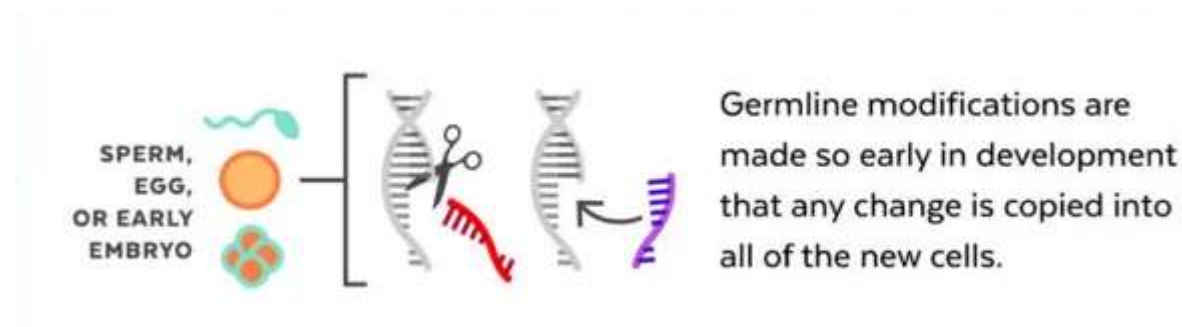




Figure 4. Work Flow of Germline Editing (Bergman, 2019)

Source: The Harvard Gazette. Available on:

<https://news.harvard.edu/gazette/story/2019/01/perspectives-on-gene-editing/>

This method first used to treat the viruses and immune system further developed and advanced through the discovery of Cas9 (Barrangou, 2015).

2.3 Scientist He Jiankui Affair: First Time Genome Modification of Human Embryos

The CRISPR technology widely gained the critique of legal and moral inconsistencies when the matter of Chinese Scientist in 2018 surfaced the world as a result of news broke by the review of MIT Technology. He edited the human embryos and removed C-C Motif Chemokine Receptor (CCR5) genes, which is a Protein Coding Gene, in order to create resistance for HIV (Greely, 2019). The edited human *in vitro embryos* then transferred to mother's womb and birth of twin girls Lulu and Nana took place who are now the age of four years (Collins, 2018). He Jiankui was home arrested and then detained in December 2019 for his unauthorized use of CRISPR technology. The Chinese trial Court declared that he rashly applied gene editing technology to human assisted reproductive medicine. He was released in year 2022 after 3 years of imprisonment getting back to his research (Regalado, 2022). The genome editing is used in somatic cells, germline modifications that is carried to the future generations thus effecting the hereditary traits of future generations, viral and bacterial disease and HIV, heart failure, sickle cell, cure blindness and tuberculosis (Chauvin, 2018). The genome editing is usually performed on eggs, sperms or human embryos after fertilization but the genome editing for womb is also in line that is successfully experimented in mice, thus safe is to say that genome editing for fetus is also coming for the challenge for the scientific and legal world (Wong & Cheah, 2021).

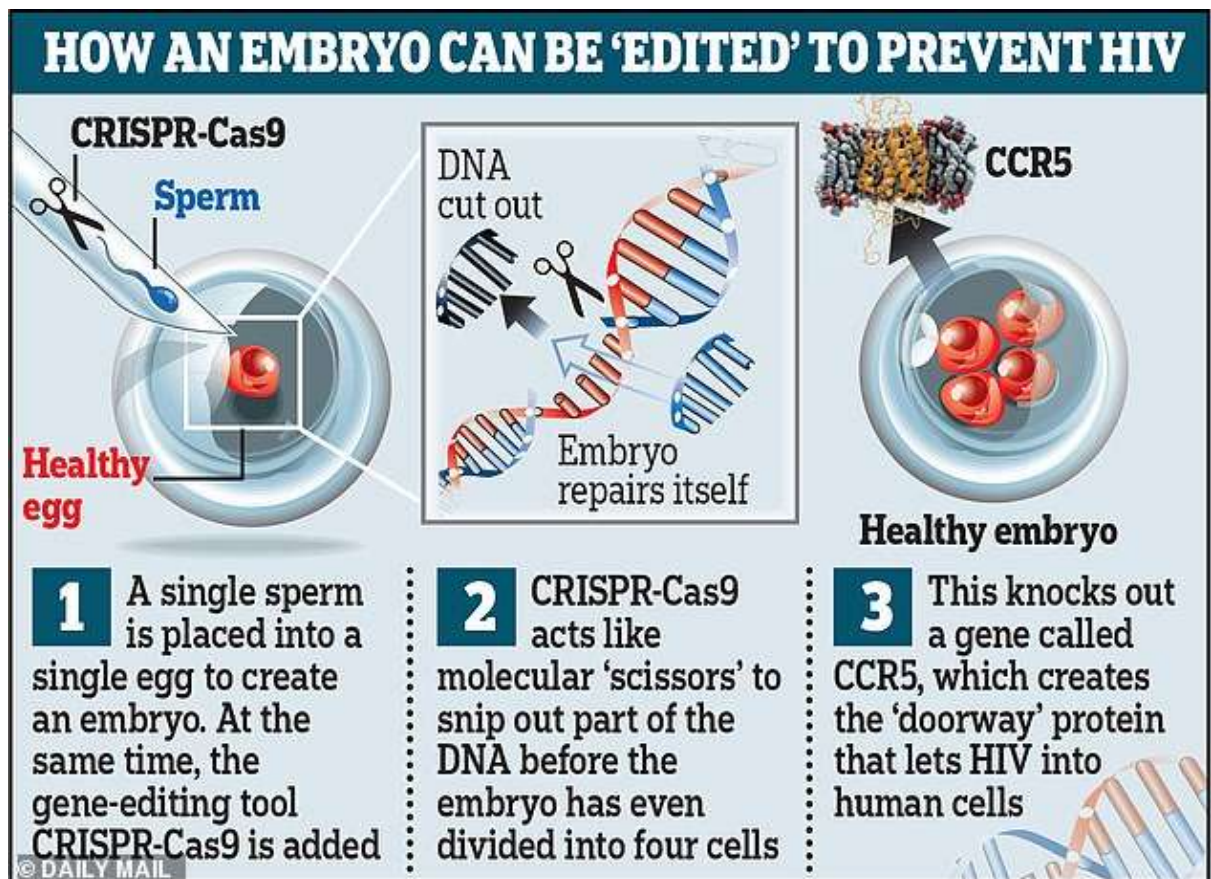


Figure 5. Work Flow of He Jiankui Germline Editing of Embryos

Source: Pinkstone, 2019. Available on: <https://www.dailymail.co.uk/sciencetech/article-7080459/6-months-later-gene-edited-babies-stir-new-debate.html>

The figure 5 shows how, theoretically, an embryo could be edited using the powerful tool Crispr-Cas9 to defend humans against HIV infection.

2.4 Genetic Outcomes of CRISPR Technology

The editing of germ line cells and human embryos first brought the critique and the term 'designer babies' surfaced the world and conveyed with it legal, medical and ethical challenges (Janssens, 2018). It refers as a child who would develop from an embryo or sperm or egg that had been genetically altered. The changes would affect every cell in that child's body, and be passed to all their children and their children's children. This process has become known as heritable genome editing (Belluck, 2017). The HGGE is used by the parents to choose the desirable hereditary characteristics for their offspring. The reproductive efficiencies and desired behaviors would be edited in the embryo through CRISPR (Pang & Ho, 2016). The genetic uniqueness and the hereditary specification of races necessary for the sustainability are highly endangered by the changing of the desired eye and hair color through the replacement of single gene in embryological development (Tomlinson, 2018).

The greater and potential risk to the health of unborn child and born adult by genome editing is site specific DNA mutations, an imminent risk for cancer. The embryos and fetuses that would develop the diseases after birth or the destruction of undesired embryos of parents only for the genetic enhancements poses the risk to the world with defined sets of human rights

(Sturme & Berg, 2022). The hereditary genome editing carried forward to the future generations, the risk of eugenics, the rights of life, dignity and protection and the consent to the genetic material and genetic uniqueness of the unborn child are the imminent and potential challenges that needed to be analyzed and addressed (Brokowski, Pollack & Pollack, 2015).

2.5 Fertilization, Implantation or Conception: Determination of Starting of the Life of Unborn Child

The subjects of rights and duties are usually human beings but since certain groups of men and or of property are also, in law, capable of being the subjects of rights and duties, such simulations of the personality of human beings are also viewed as persons in the artificial sense. According to Salmond (1913/2023), a person may thus be defined as any being to whom the law attributes capability of interests and therefore of rights, of acts and therefore of duties. As for as legal status of unborn child is concerned, Salmond (1913/2023) says that a child in womb can obtain rights and inherent property but such rights are contingent on his being born alive. In this case, the matter of ownership of mother is also a vice versa. Along with legal status of unborn child, the other thing that is needed to be defined for the concept of personhood is to fix the starting point of life. This issue has been dealt with in the case titled *Lawrence v. Texas* (2006) saying that an 'individual' is a human being who is alive, including an unborn child at every stage of gestation from fertilization until birth. As life begins 14 days after fertilization or within the moment when the male and female germ cells combine. In gametogenesis the sperm combines with the oocytes commonly termed as ovum or egg. Their combination enters into another step which is called fertilization. In fertilization the 23 chromosomes from sperm and egg cell combines to form 46 chromosomes which is the genetically unique single cell human embryonic zygote. The genetic uniqueness and presence of 46 chromosomes at the fertilization stage makes the embryo a human life even at the fertilization stage (Irving, 1999). Carlson (1994) views human pregnancy as the process that begins when an egg fuses with sperm. The gametogenesis converts them into mature gametes. Then they flow to uterine tube where the fertilization takes place. This fertilized egg that is the embryo makes it way towards uterus where the implantation occurs. In embryonic to fetal stage, the human organism is not changing from one specie to another, these are just the stages of development of a genetically unique human being (Walters & Singer, 1982). After 9th week the fetal stage of embryo started to develop.

3. Right of Ownership of Mother over Unborn Child with the John Locke' Principle of Property

The right of mother over her child can be better explained with the labor theory of property as this will further explain the status of embryo as a person rather than a chattel.

3.1 Embryo a Chattel or a Person: Determination of Interim Status in the light of "Davis vs. Davis"

The debate over the status of frozen embryos is quintessential in determining this problem. The right that the mother exercises over the embryo would determine that whether she is capable of giving consent or simply interfere in the heritable genomes of the embryo. The few interpretations of the Common Law jurisprudence are worth mentioning here to bring the light over the property conflict. The famous case is of *Davis vs. Davis* of 1992 decided by Tennessee Supreme Court on how to dispose the embryos that are now been frozen. The contention here arose if embryos are person, then they must be implanted but if they are property then the inheritance will be applied. The Court of Appeals did not discard specifically that the embryos are not property. But Apex Court held their status as object of an interim nature neither person nor property but occupy an interim category that entitles them to special

respect because of their potential for human life (Davis vs. Davis, 1992). Further, French genetic in the Trial Court giving the expert opinion as a testimony stated that the embryos are ‘tiny persons’ (Davis vs. Davis, 1992) and objectifying embryos as property was restricted.

A human being is differentiated from a thing on the basis of the concept of personhood. In common law of past ages, the moveable things are known as Chattel on which ownership can be exercised. The lesser human which did not have the right of person were considered as chattel, from which the concept of chattel slavery is introduced. The commodification of human is at its best is known as Chattel Slavery. The concept of Chattel Slavery was practiced in 16th to 18th century. In America and Europe, the human was considered as a legal property on which the right of ownership can be exercised. The slaves and their off springs can be sold, bought and used per the wishes of the owners and the chattel slaves are used for the benefits of their owners. This is defined as civil relationship in which one person has absolute power over the life, fortune, and liberty of another. The slaves were the personal possession of the owners. In America and in 13 British Colonies this practice was thoroughly exercised. The people were enslaved on the basis of color and region. America had almost 4 million of the slaves till 1860. Then the slavery was made illegal throughout the world and 14th Amendment in USA Constitution and International Human Rights Instruments strictly prohibit Chattel Slavery (Johnson, 2013).

The genome editing is modern day commodification of embryo as future born human. If embryos are not considered as human, then they may be considered as chattel. The technology of genome editing with its genetic enhancement methods paved a safest way than sperm donation and PGD methods for selecting the traits for the child. The purpose of selecting and enhancing the desired traits for the embryos is to produce more beneficial and desirable generation. The choice of the attitudes and characteristics that benefit parent the most is the modern-day form of chattel slavery. The child with desired enhanced or reduced traits will perform accordingly after the birth. The commodification of embryos is done by paying the fee for the editing and then getting the desired results. Fenwick (1998) shares her view in the book in favor of genetic editing that ‘are you willing to pay higher taxes to cover costs of government benefits for babies born with genetic defects?’ The genetically edited embryo would be the ‘commodity for purchase’ offered or sold by the doctors as genetic slave to the parent, edited per required needs and would perform the desired functions (Roberts, 2017).

3.2 John Locke Theory of Labor and the Ownership Right of Mother over the Embryos

To discuss the property interests of the parent over the embryos the natural law theory of John Locke is best suited for its applicability and analysis of this concept as per the view of jurisprudence (Berg, 2005). When this research discusses the concept of property the following definition gives a complete view of the concept as property is a set of legal relations among persons relating to things (Smith, 2012). This relation provides “bundle of rights” and “control” which in ordinary sense is attributed as ownership. The property rights include the right to possession, use, exclusion, transfer of ownership, disposal, non-expropriation by the Government (Honoré, 1961). The theory can be best viewed through different angles and perspectives. This theory simply regarded the ownership over one’s self and ownership by appropriation when the person mixes the labor in naturally occurring thing then that thing belongs to his ownership. In John Locke, Second Treatise it is mentioned that:

“Though the Earth, and all inferior Creatures be common to all Men, yet every Man has a property in his own Person. This no Body has any Right to but himself. The Labour of his Body, and the Work of his Hands, we may say, are properly his. Whatsoever then he removes out of the State that Nature hath provided, and left it in, he hath mixed his Labour with, and joined to it something that is his own, and thereby

makes it his property. It being by him removed from the common state Nature placed it in, hath by this labour something annexed to it, that excludes the common right of other Men. For this Labour being the unquestionable Property of the Labourer, no man but he can have a right to what that is once joined to, at least where there is enough, and as good left in common for others.” (Locke, 1690/2005.Sect 27.p 11).

3.3 Investment in Labor: Marking a Difference Between the IVF Parent, Gametes Donors and Surrogates

The labor theory further poses the question that whether the egg contributor has more right to the product of its labor or the sperm contributor. Again, what will be the position of surrogate mothers or egg and sperm donors. The labor theory tries to answer these questions on the basis of “investment in labor” concept (Berg, 2005). The investment in labor provides that the one who contributes in labor have the property interest in the product. In *in vivo* fertilization there is larger involvement of labor. The labor in pregnancy includes the gestation and birth. The egg contributor or the mother has a greater investment due to child rearing in womb. The surrogates have the contract so their labor results in payment. But the commodification of embryo by labor theory again faces the difficulties by modern medical technologies. In the era of artificial wombs and *in vitro* fertilization little to less labor is involved by the parents so they must not have any claims of ownership over the embryos.

3.4 Furtherance of Individuality Rather than Slavery: A Crux of Labor Theory of Property

Now this view can be discussed and analyzed. First is that whether embryo is the product of labor. If egg and sperms are part of one’s body then its derivative by the labor that is the embryo is quintessentially the product of the body and falls under the ownership. The second contention here is that whether the ownership relates not to physical ownership but to the identity and individuality. If this is so then every embryo is different from the parent due to the uniqueness of the DNA. So, the embryo does not fall under the ownership of the parent. This concept of the genetic identity will be further discussed in the next part. Coming back to the bodily ownership and the product of the labor, in the words of Lawrence Becker that if anything is clearly a product of (one’s body’s) labor, a child is (Becker, 1977).

If this research takes into account, the proprietary interests in one’s body and considers the gametes as the part of body then the proponents of the labor theory would justify the ownership over the derivatives of body that is embryo. But in this case again the point here is to consider that whether the John Locke theory of labor and property revolves around the ownership concept to provide the individualism and self-identification. As per Waldron (1988), it is much more plausible for Locke to say that a man has creator’s rights over his person than that he has them over his body. In this scenario, under Locke’s theory, the whole of the foundation is to create free individuals and liberty that can be exercised to the extent not to intervene in other people freedoms. Thus, in this case the freedom of potential human and its own self-identity limits the ownership and property interest of progenitors over the children.

4. Determination of the Right of Ownership over Gametes and Genetic Material

The labor theory when extended to embryonic ownership tends to exclude the IVF embryos due to the minimal involvement of labor. By taking the second perspective of labor theory in account that revolves around the ownership of body this part analyzes the ownership in gametes and genetic material and genetic information. Whether they come in the orbit of ownership.

4.1 Genetic Material versus Genetic Information

In this setting, it is worth while to first differentiate between the genetic information and genetic material thus to clearly apply the Locks claims of ownership on them. As for the Genetic information is concerned, this information is about genes, or one's inherited characteristics that is derived from a person's DNA sample. Genetic material, whereas, implies any human biological specimen such as human tissue or blood from which DNA can be extracted (Roberts, 2015)

4.2 Genetic Material as the Subject of Ownership

The two famous cases tell us the perspective of Courts towards the ownership of genetic material. The first case is Lacks vs. Thermo Fisher Scientific Inc., (2021) wherein the Lacks claimed the other party for theft of the tumor removed from the body of Ms. Lacks. The physicians of Johns Hopkins Hospital found the cell line that reproduce indefinitely outside body and patent it. Similarly, the second case is of Moore v. the Regents of the University of California (1990) wherein the spleen when removed from body was used in research. Patient made the claim over his spleen. His spleen cell line was patented for 3 billion dollars. But the Supreme Court ruled that human biological materials as objects sui generis are not subject to the general law of personal property. It was further observed that gametes, organs and cell cannot be owned. But the debate did not stop here. The ownership of body parts and organs are still the ongoing debate.

4.3 Genetic Information and Gametes: Not a Subject Matter of Ownership

Further moving towards the corners of genetic ownership the importance of which is that the ownership relates to sovereignty, control and decisional making authority (Toomey, 2023). Having control over the genetic material and information would grant the rights to parent for genome editing of the embryos because the material falls under their domain and not child. As further elaborated by Blackstone in the following words that sole and despotic dominion which one man claims and exercises over the external things of the world, in total exclusion of the right of any other individual in the universe (Blackstone , 1979). Thus, the difference as previously analyzed was about the things on which this research can exercise ownership and the things on which this research does not have any ownership claim. In the perspective of labor theory, the ownership of bodily organs is 'intuitive' (Render, 2013). As it is the theory of natural law so may be the case that it is the natural instinct to exercise self-ownership over body parts. Thus, the genetic material is gametes of the body. The question here is that whether it can be owned as other body tissues and organs. As per the cases above the Court's decisions answering in the negative to the bodily tissues.

In the case of Yearworth vs. North Bristol NHS Trust (2010), it was interpreted better. the Court of Appeals rejected the claim of personal injury where harm was occurred to the stored sperms. Lord Judge CJ, then, observed the gap in scientific approach that the material generated by body once excreted from it cannot be claimed under the title of 'personal injury' in the case of any harms and damages. The courts of England and Australia tried to extend the ownership to the gametes. The labor theory in their own interpretation is put by Court as 'work and skill' to make the body part as property. But the courts of England refuse to hold gametes under work and skill exception like the ownership of other property because according to them in IVF the work and skill is more of a doctor than the gametes providers (White, 2013). Nonetheless in Australia, Justice, then, Hulme concluded that the doctors do not have proprietary interests in the gametes as they are doing the work in behalf of the gamete's providers (Re Estate of Edwards, 2011). It may be stated here that relationship is of the bailment between the parties. The European Commission on Human Rights (ECHR) provides the same negative for ownership in gametes. The hospital Centers for Sperm Conservation and Study (CECOS) refused to give sperms of the son who died due to cancer to mother. The case was

appeal to European Court where it was concluded as per the ground that according to Health Code of French Law the gametes are preserved till death and the right to become parent is not transferable. There is no violation of Art 1 of the Protocol because this Article does not incorporate the gametes as property. This Art says that, “every natural or legal person is entitled to the peaceful enjoyment of his possessions. No one shall be deprived of his possessions except in the public interest and subject to the conditions provided for by law and by the general principles of international law”. It relates to the economic and proprietary interests. So, the jurisprudence does not grant the ownership interests in gametes as liberally as they give to the corpses and organs of human (Jones, 1988).

4.4 In-Volitional and Involuntary Transfer of Hereditary Information

Entering into the paradigm of things that cannot be owned the biggest reality is the genetic information. In the Leukemia Gene Case it was observed that for the natural production of lymphocytes the genetic material that was found is same in every person. So, the things that cannot be owned under property law are the things on which this research cannot exercise over dominion. The sky, water in the ocean, the oxygen is owned equally by everybody. By mixing salt in ocean water cannot be included as mixing the labor to own the ocean. Similarly, the nucleotide in genomes is owned by every human being (Moore vs. the Regents of the University of California, 1990). The genetic information is involuntarily shared by parent. Half of the material related to genes are inherited by parent. The 23 pair of chromosomes contain the material the sequence of which is passed to child uniquely. Every embryo DNA is unique. This genetic material and genome are responsible for medical condition, diseases and behavioral and physical traits (Ram, 2015). This genetic uniqueness is inherited involuntarily and shared by the generations. The exercise of ownership over it is directly in conflict with the individual autonomy.

In the discussion of quasi property interests of parent over child the personhood theory is also important to be discussed. The personhood theory deals with the exercise of free will over the objects. As per Hegel (1967), a person has as his substantive end the right of putting his will into any and every thing making it. Parental autonomy on the name of free will cannot intervene into the autonomy of others as it is also against the basis of labor theory. The genetic information to be edited is the genes and the information they contain are fundamental building blocks of a people’s identity (Zwir, Arnedo, Del-val et al., 2020). Every unique DNA is shared 50% by genetic parents that is shared ‘involuntarily’ and ‘non-volitionally’ which is not under the ownership of anyone as it is the heritage of mankind. Control, autonomy and personal identification is exercised only by whom the uniqueness belongs i.e., the embryo. The self-ownership of body if seen in Lockean perspective deals with the individuality and personal identity. So, all the identity of a person is stored and found in human genome. Realization of individuality is one of perspectives of Lock’s theory. DNA replicates in the body in which it is found so all the genetic identity and uniqueness belongs to that body (Roberts, 2015). Thus, absolute ownership of parents over child genome is falsified concept even in the labor theory. From the scientific and legal debate, the potential control can be exercised by the person to whom DNA belongs in realm of privacy and therapeutic measures but still it is not subject of ownership because it is involuntarily shared.

5. The Extent of the Decisional Authority in Realm of Protection of Unborn

In today’s world where the autonomy of child is viewed in competition with the bodily integrity and autonomy of mother, where she claims the ownership, back in past things this view was not the same. In 15th and 17th century the fathers had the control over the family and ownership over the children. They gave them to the servitude. But after 19th century and in 21st

century the concepts of reproductive autonomy came into play (Mason, 1994). The point here is to discuss that who has more control over child; the father or the mother?

5.1 Feminist Critique of John Locke and the Autonomy and Control of Mother

The feminist approach of the John Lock theory provides the view that not only the father has the right over the children but the mother also has the equal right for the decision making about their children (McClure, 2007). This approach was analyzed by the feminist authors while they interpreted the Second Treatise of the Government. In para 52 of this Treatise, it is mentioned that:

“It may perhaps be censured as an impertinent criticism, in a discourse of this nature, to find fault with words and names, that have obtained in the world: and yet possibly it may not be amiss to offer new ones, when the old are apt to lead men into mistakes, as this of paternal power probably has done, which seems so to place the power of parents over their children wholly in the father, as if the mother had no share in it; whereas, if we consult reason or revelation, we shall find, she hath an equal title...” (Locke, 1690/2005. Sect 52, p.18).

The reason provided them is the equal treatment for exercising the control and authority over the child. When in common law dispute occurred on frozen embryos custody the Courts followed the balancing approach for the entitlement of embryos (Purvis, 2022). In the case of *Reber v. Reiss*, after the divorce between the partners the Court granted the control over frozen embryos to the mother despite of rejection by the father because the mother has no other option than to use those frozen embryos as breast cancer had affected her reproductive capacities. As reverting back to the Labor Theory, the concept is now somehow interpreted as mother has gone through more labor during In Vitro Fertilization (IVF) and implantation so she has an upper hand over the father for exercising the parental control and authority over the child.

5.2 Objectification of Child: A Practice in Conflict with the Concept of Personal Rights

Prior to 17th century the concept of treating human as chattel was applicable. It is revived through the technology of genome editing. The parents while objectifying their child have control over the autonomy of their child. The chattel slave has no control over the decision making rather the owner makes the decisions. The parents would edit all the desire traits they wanted in their child so to make the object or property worthwhile. The bodily integrity of women is so recognized that it falls into the fallacy that in surrogacy there is selling of the parental rights and not the child. As child is only the property and the surrogate mother as through the concept of sale is only selling the ownership rights by granting the other party the possession (Lieber, 1992). So, all the rights that revolve around the mother purely neglects the other side.

The concept of genetic enhancement is more related to the concept of designing slaves for own parental benefits rather than for the autonomy of the child. The genome editing has nothing to do with the parental control and bodily integrity as once the reproduction decision is made the question of bodily integrity vanishes from the orbit because now the question does not exist that whether mother wants the child or not (Ossareh, 2017). But wanting a child of specific quality and discarding other may safely be fell into eugenics and discrimination. In the previous part this research did not confirm with the idea of ownership over generic information so now this research treats it as Personal Rights and not a Proprietary matter. The difference between the two is that the first talks about the right from which this research achieve economic interests and benefits but the personal rights are related to the status of the person which deals with the autonomy of the human being in all the spheres including the decision-making spheres of the life (Ashley, 1934). So, the right over the DNA would fall into the personal rights over which only the individual having that material would exercise the control. In the case of

Muhammad Nawaz v. Addl. District & Sessions Judge etc., it is very clear that the Courts in Pakistan also put DNA privacy into Article 9 and 14 of the Constitution of Islamic Republic of Pakistan. Similarly, in USA the Courts also try to put the privacy and protection of DNA under 4th amendment to the Constitution of USA (Lowenberg, 2011).

As the DNA is inherited involuntarily and involuntarily from one generation to other so only the individual that have that DNA in the body, from which his whole body is constituted of and composed will exercise the control. It is already discussed in the case Moore vs. the Regents (1990) that when genetic material leaves the body then the individual no longer can exercise the control over it so the mother would not have the right to give consent for the genome editing.

5.3 Fiduciary Relationship as Opposed to the Concept of Absolute Control

If parents have no control over the DNA, then who would make the best decision regarding child and protect him till he shifts from passive legal capacity to active legal capacity. It is very clear that for the child the words ‘custody’ and ‘guardianship’ are used and not the word ownership. The unborn child is by no means a chattel. There is a need to apply Feinberg Principle again here. The child has the ‘autonomy rights in trust’ to his parent. The parents exercise the fiduciary duty in relation to their child (Darby, 2013). The case Antrobus vs. Antrobus (2014) provides that parents in nature owned a fiduciary duty towards their child and harm caused by their direct conduct is regarded as the breach of duty of care. So, the parents own two types of fiduciary duties. Firstly, they have to protect the child from any physical and mental harm and secondly, they have to protect the anticipatory autonomy rights that is to preserve the right of choice over his genome when they acquire the active legal capacity.

Conclusion

The ownership over body is of prime importance in law and jurisprudence. The ownership right of mother over her child is debated in perspective of entitlement of rights for taking decisions about unborn DNA and genes but the jurisprudence and law, arguably, never granted the child a status of property. The labor theory talks about individualism and self-identity. It does not extend to bring child in the ownership of mother by way of labor. This paper concludes that the genetic information is transferred invitationally from generations to generations as it is not a subject matter of ownership. In this regard, the Courts ruled that gametes are not a subject matter of ownership. The ownership of mother over child DNA and her gamete is equivalent for treating unborn child a property and the abridging the child personal rights over its DNA. This paper suggests that the parents must only have fiduciary duty to safeguard the rights of their unborn child to protect the child right to open future. The DNA must be included under the realm of Personal Rights so that no one can intervene in the unique genetic information of the child and its capacity to exercise the potential interests after the birth. Lastly, the Genome Editing on embryos for changing of physical characteristics must be treated as eugenics and Genocide.

Conflict of Interest

We declare that there is no conflict of interest related to publication of this study.

Contributions: All authors have contributed equally. All the authors have read and approved the final version of the manuscript and agreed to be accountable for all aspects of the paper.

Statement of Data Availability

Data used for this research is available and can be provided through email to the corresponding author.

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