In cord blood. Are the Stem Cells from the Umbilical Cord Private Property?*

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ABSTRACT: In this article I defend that in order to guarantee the allogeneic uses of the stem cells from the umbilical cord the State should restrict the private storage of umbilical cords. Umbilical cords should not be seen as objects of private property. A universal draft of suitable donors for the sake of creating a public bank fosters an important societal good and does not violate anyone’s fundamental rights.

KEYWORDS: UMBILICAL CORD. PROPERTY RIGHTS. DISTRIBUTIVE JUSTICE. COMPARATIVE LAW.

1. Introduction

The birth of the Spanish Princess Leonor de Borbón Ortiz in 2005, the first daughter of Prince Felipe de Borbón and Letizia Ortiz, prompted a reaction of popular enthusiasm among adherents to the Spanish monarchy. Such enthusiasm was somehow clouded when it became public that Prince Felipe and Princess Letizia had decided to send the blood of Princess Leonor’s umbilical cord (hereafter BUC) to a U.S. private laboratory located in Tucson, Arizona, where it will remain for at least 15 years.¹ The controversy, and a crucial change in the Spanish legislation in 2006 (very likely forced by this episode and the subsequent outburst of private BUC storing by many Spanish parents), led the royal couple to proceed in a different fashion after the birth of their second daughter in 2007: splitting the sample between a private bank in Germany and a public bank in Spain.²

* I wish to thank Maya Sabatello, Nir Eyal and Glenn Cohen who read a first draft of this article and made me very useful comments. This essay is part of a research project funded by the Spanish Ministry of Science and Innovation (“Las dificultades de la democracia: entre política y derecho”, DER-2009-08138/JURI) and was written while visiting at the Division of Medical Ethics of Harvard University (2011-2012). The Spanish Fundación Cajamadrid provided me with a grant to develop my project on the ethics of organ transplantation at Harvard. To all those institutions and persons I am deeply grateful.

They did it in the midst of a significant public firestorm over the rationality and advisability of keeping the cord for an autologous use, a quarrel that has also taken place in other countries. At the same time, the new regulation on the use and storage of BUC was challenged by the Government of the Madrid Autonomous Community before the Constitutional Court, and a decision is still pending.

Although the storage of stem cells from the umbilical cord raises many different and interesting questions, it is my aim in this paper to show how a hybrid regulation as arguably is the Spanish law on the matter, leads to unfairness and confusion. I will argue that it is unfair because it allows the waste of a valuable resource for our much boasted universal public health care system. Secondly, it is incoherent to the extent that it allows the existence of a private market of BUC’s storage, but at the same time it does compel private banks to release their samples to anyone in need of the cells. And last but not least, it is self-frustrating because it tolerates the exportation of BUC (as actually happened with the blood of the Prince’s second daughter). Ultimately, it is misguided because it ill-suits with the altruist character of our whole system of organ and tissue donation and transplantation. The Spanish regulation on BUC is another example of the radical contradiction that lies at the heart of the altruist systems in the distribution of organs and tissue in public health care systems: we grant, on the one hand, a distribution based purely on need – even those who refuse to contribute might be recipients – but we don’t really compel anyone to contribute to the pool of resources to be distributed.

I will proceed as follows. First I will give some background on the technical aspects of the transplantation of the stem cells from the BUC and how the regulation has developed both in the USA and Europe. We will see the main reasons for our being concerned about the growing business of private BUC storing. In sections III and IV I describe with more detail the inconsistencies of the Spanish regulation already pointed out, and, in addition, I refer to recent developments in the theory of property advanced by Stephen R. Munzer and J. W. Harris which are particularly apposite when dealing with body parts. I rely on their theories for the sake of building my case for the mandatory conscription of BUC which I deem as the best means for creating a public bank of stem cells for allogeneic, and, eventually, but much more unlikely, autologous uses.

2. The Emergence of BUC Banking and the Normative Response

3 By autologous use is meant that donor and beneficiary coincide, or is family related.

The blood of the umbilical cord (BUC) is a very rich source of stem cells and it has been used for more than 50 years for the treatment of several diseases associated with the immunological system, as well as blood cancers such as leukaemia and lymphoma, among others. There are other significant advantages in the use of BUC: the transplantation of cells from the BUC is less prone to rejection than are current therapies which employ bone marrow or peripheral blood stem cells, and, as opposed to bone marrow transplantation, the finding of a suitable matching-donor is more agile.

Although, as I said, the cells from the BUC may have either an allogeneic or autologous use, within the scientific and medical community this second possibility is deemed as extremely unlikely for the following explanation: “This type of treatment is useful only for a limited number of diseases or disorders, however, as preexisting genetic conditions are not treatable because the saved cord blood contains the same dysfunctional genetic code that results in the expression of the condition in the first place. For this reason, saving cord blood for autologous use on a large scale may be impractical because of the limitations to its use and the infrequency of the conditions that can be treated with the unit”.

According to the Spanish National Plan of Blood from the Umbilical Cord, out of the 6,000 transplantation of stem cells from the BUC made worldwide only 3 were autologous. In 2007 the American Pediatric Association issued a policy statement in which it is recommended that pediatricians discourage private storage of cord blood as “biological insurance”, and, encourage “cord blood donation... when the cord blood is stored in a bank for public use”. In 2008 the Committee Report of the American Society for Blood and Marrow Transplantation made a similar recommendation. In the report “Cord Blood”, while not openly advocating for the creation of a single public bank, the Institute of Medicine insisted on the necessity of a national program which establishes standard procedures of collection, informed consent, and non-manipulative information to the

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6 According to the Spanish National Plan of Blood from the Umbilical Cord issued by the National Transplant Organization (ONT), only in 30% of the cases a suitable matched-donor of bone marrow is found among the close relatives of the patient. The document is available at [http://www.ont.es/infesp/Paginas/PlanNacionalSCU.aspx](http://www.ont.es/infesp/Paginas/PlanNacionalSCU.aspx).

7 See Cord Blood. Establishing a National Hematopoietic Stem Cell Bank Program (hereafter Cord Blood) at 43. The Report was issued in 2005 by The Institute of Medicine of the National Academies of the USA. The text is available at [http://www.nap.edu/catalog/11269.html](http://www.nap.edu/catalog/11269.html).


prospective donors, both as regards to the realistic therapeutic options available, and the non-privative use of the stem cells when given to a public facility.\textsuperscript{10}

Notwithstanding those scientific facts, many parents around the world keep the BUC for an eventual autologous transplantation to their offspring siblings or to other close relatives. Correspondingly, a profitable business of “private banking” of BUC have flourished,\textsuperscript{11} although it has been shown that such practice is absolutely cost-ineffective. According to the study conducted by Anjali Kaimal and others, the storage in a US bank at the lowest market price renders 0.0026 life years. Therefore every year of life gained costs 1,374,246$.\textsuperscript{12} This is the main reason why they strongly recommend that the government be more vigilant over the false promises made by private banks of umbilical cords, and be more emphatic in the education of the public.\textsuperscript{13}

But fraud is not the only shortcoming produced by the existence of private storage of stem cells from the BUC. There is also a significant opportunity-cost which ought to be taken into account.\textsuperscript{14} A public bank of cord blood is a better alternative from a personal and a societal perspective, particularly for those who are ethnically underrepresented.\textsuperscript{15}

\textsuperscript{10} In Italy, after a new regulation was enacted in 2009, it has been reported the vast disparity of consent forms among the different BUC banks and the gaps between those consent forms and the guidelines issued by the international network “EuroCord” and the Foundation for the Accreditation of Cellular Therapy (FACT); see Carlo Petrini and Michele Farisco, “Informed consent for cord blood donation. A theoretical and empirical study”, Blood Transfusion 9 (2011) 292-300. Similarly Francesca Capone, Letizia Lombardini, Simonetta Pupella, Giuliano Grazzini, Alessandro Nanni Costa, Giovanni Migliaccio, “Cord blood stem cell banking: a snapshot of the Italian situation”, Transfusion 51 (2011) 1985-1994.

\textsuperscript{11} The phenomenon is also spreading in less developed countries such as México; see V. Moisés Serrano-Delgado, Barbara Novello-Garza and Edith Valdez-Martínez, “Ethical issues relating the banking of umbilical cord blood in Mexico”. BMC Medical Ethics 10 (2009) 12.

\textsuperscript{12} Anjali J. Kaimal, Catherine C. Smith, Russell K. Laros, Aaron B. Caughey and Yvonne W. Cheng, “Cost-effectiveness of Private Umbilical Cord Blood Banking”, Obstetrics & Gynecology 114 (2009) 849-855, at 850. The estimation is based on very reasonable assumptions such as the likelihood of developing a medical condition which makes advisable the use of the umbilical cord stem cells (0.04%); the probability that an allogeneic transplant in the family be required (0.07%); a period of 20 years of storage and the fact that between the 25% and 56% of the stored cords are useless. Although the notion of “cost-effective” in terms of life-years gained is controversial, the authors assumed what is usually estimated as such: between 50,000$ and 100,000$ per year.

\textsuperscript{13} In their opinion, the industry takes advantage of the well-known and well-spread “possibility effect”: when estimating very rare events, individuals tend to overestimate its likelihood; see Daniel Kahneman, Thinking, Fast and Slow, (Farrar, Straus and Giroux, 2011) chapters 29 and 30.

\textsuperscript{14} See Kaimal, supra note 12 at 853. In this sense, it seems ludicrously naïve to base the case for the existence of private banks of BUC in that those eager to store privately are not necessarily thinking on an eventual autologous use, but in allogeneic uses (see that sort of defense in Peter Holland and Catherina McCauley, “Private Cord Blood Banking: Current Use and Clinical Future”, Stem Cell Reviews and Reports 5 (2009) 195-203). If that were the case, they can always resort to the public system which is a more rational, reasonable and fair alternative.

As a matter of fact, the last report issued by the Government Accountability Office of the US states that the competition between the private banks of BUC is hindering the needed supply to the National Cord Blood Inventory (NCBI) in order to reach the optimum 150,000 units for transplantation, the amount that was set as a goal by the Institute of Medicine.\textsuperscript{16} Currently, a number of States have passed pieces of legislation in BUC – mainly for “educational” purposes to prospective donors- after the enactment of Federal legislation on the matter: the Stem Cell Therapeutic and Research Act of 2005 and the Stem Cell Therapeutic and Research Reauthorization Act of 2010.

In Europe, the Directive 2004/23/EC of the European Parliament and the Council on setting standards of quality and safety for the donation, procurement, testing, processing, preservation, storage and distribution of human tissues and cells, adopted on March 2, 2004, encouraged the Member States to enact legislation based on the principles of fairness in the access to the BUC, altruism and non-profitability (article 12), but did not openly call for a ban of private banks of BUC.\textsuperscript{17} In his opinion n°19 (“Opinion on the ethical aspects of umbilical cord blood banking” issued on March 16\textsuperscript{th} 2004) the European Group on Ethics in Science and New Technologies to the European Commission, also raised very serious concerns on the existence of private banking; along the following lines: “Tissue banks were up till now relying on free donation for treatment to the benefit of other persons or for research, and by the fact that it implies an act of solidarity or generosity it contributes to the social cohesion, while the commercial cord blood banks are running for profit. This reflects a more general shift to a privately funded health care system from a health system based on solidarity and motivated by public health considerations, which has characterized Europe in the last decades”.\textsuperscript{18} Although a minority of the members of the Group were favorable to banning private storing of UCB, the majority finally concluded “... that a strict ban would represent an undue restriction on the freedom of enterprise and the freedom of choice of individuals/couples”.

3. The Public Good Approach: The Example of the Spanish Regulation

\textsuperscript{16} The report is dated October 6, 2011, and is available online at http://gao.gov/products/GAO-12-23 (retrieved January 30, 2012). According to the Report, the number of units collected since 2007 has been 41,000 and the NCBI has reimbursed the 13 provider banks with more than 45 million $.


\textsuperscript{18} Available at http://ec.europa.eu/bepa/european-group-ethics/docs/publ_op19_en.pdf.
As I already pointed out, the Spanish regulation of private umbilical cord blood banking came in the aftermath of the decision made by the heir of the Spanish Crown, and the proliferation of regional regulations that were prone to the existence of private storage of BUC. Both the European Directive and the Opinion of the Group on Ethics in Science exerted a significant influence in the Real Decreto 1301/2006 enacted by the Government in 2006, but the final result is unsatisfactory.

According to article 15.2. of the Decreto, private banks of BUC are authorized, although, under the principle of "universal availability", they become obliged to put the stored blood at the service of the Spanish Network of Bone Marrow for any allogeneic transplant that any patient in Spain might need, the only exception being the existence of an indication for an autologous transplant, which, as I have already argued is extremely rare. In practical terms this means that private banks cannot guarantee the autologous transplant to their clients, so, at the end of the day, there is no business to make, which is tantamount to saying that the BUC in Spain have been taken (at least partially). There is a just compensation, as in any other confiscation, and that comes from the private storing facilities because the regulation makes mandatory for them to buy insurance to cover the contingency of being requested to release the sample for an allogeneic use clinically indicated in a suitable recipient, therefore frustrating the privative use expected by the parents (article 15.4.).

This framework has disappointed everyone and has not precluded that many parents in Spain follow the path taken by the Royal Family in sending their BUC to private banks in the European Union, taking advantage of the legal gaps in the Spanish regulation. It seems that the Government has been deliberately ambiguous when not expressly banning the exportation of BUC to foreign banks. In the ONT webpage, one can read the following answer to the question “May I send abroad the BUC of my offspring?”: “... you may do so whenever you want if both the Spanish facility in which the BUC is extracted and the storing facility abroad fulfills the legal requirements for undergoing such activities, and both facilities have signed an agreement to do so. If the storing facility is not located within the European Union, a special permission to the ONT should be requested”.

19 See article 27.2 of the Decreto. The data presented by Anjali J. Kaimal, et. al., show that out of the 460,000 units currently stored in the US only 99 have been employed (0.02%). See supra note 12.
20 It is a partial taking to the extent that the use of the cells is subject to the contingency that others may need them. I owe this clarification to Glenn Cohen.
23 See http://www.ont.es/informacion/Paginas/Donaci%C3%B3nSangreCord%C3%B3nUmbilical.aspx (retrieved January 23 2012).
A careful and extensive survey through the webpages of the most important private banks in Spain leads to the following conclusions. First, most of the companies openly incite exportation of the BUC to European private storing facilities in the fashion that is shown in the following chart:

<table>
<thead>
<tr>
<th>NAME OF COMPANY</th>
<th>DESTINATION COUNTRY</th>
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<tbody>
<tr>
<td>VidaCord</td>
<td>UK (Nottingham), POLAND</td>
</tr>
<tr>
<td>Crio-Cord</td>
<td>BELGIUM</td>
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<tr>
<td>Bebé Vida</td>
<td>PORTUGAL</td>
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<tr>
<td>Ivida</td>
<td>PORTUGAL</td>
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<tr>
<td>Celvitaé</td>
<td>UK</td>
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<tr>
<td>Future Health Biobank</td>
<td>UK</td>
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<tr>
<td>Vidaplus</td>
<td>GERMANY</td>
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<tr>
<td>Stem Cell</td>
<td>GERMANY</td>
</tr>
<tr>
<td>Sevibe</td>
<td>GERMANY (Leipzig), POLAND</td>
</tr>
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Secondly, most of the companies blur, in various manners, the fact that the Spanish legislation makes mandatory the release of BUC stored in private banks located in Spain when another patient is in need. Third, all of them overstate the therapeutic possibilities of the autologous use of the BUC24. Moreover, as Alexander H. Schmidt and others have said, the marketing that those companies display, in Spain and elsewhere, far from being an invitation for biomedical optimism (as it is often the case with the commercial strategy that these corporations embrace) relies paradoxically on a pessimistic presupposition: that in the event of the newborn developing a fatal condition in the future only the autologous use of his BUC is foreseeable as a cure.25 Shouldn’t we be more confident in medical progress than that? It should come as no surprise that even mild advocates of the possibilities of the autologous uses of BUC consider that the marketing strategies of the private banks are: “… a rarity in the modern, highly regulated industry”26.


One immediate question that comes to mind is the cost of the selfish decision consisting in shielding the ownership and use of the offspring’s stem cells of the BUC. What happens, for example, if the individual from which the BUC has been privately stored develops some condition which makes futile the autologous transplantation of the cells but not the allogeneic use of someone else’s? Is he still a candidate for the transplant of cells coming from the Spanish public network, notwithstanding the fact that the family not only did not provide for the common pool, but tried to exclude anyone else’s from the beneficial use of his blood? 

Now, one has to consider, first, that the minor was not the decision maker but instead his legal representatives, namely the parents. That circumstance makes it extremely rough to impose any harsh consequence such as the exclusion from the benefit of the treatment when he or she cannot still make autonomous decisions. However, a minimum sense of fairness drives us to claim that there ought to be a tit for tat consequence: the immediate return of privately stored BUC to the Spanish public storage network.

We can safely affirm that the public health care system should not provide universal access to the storage of BUC for autologous use because that would be absolutely preposterous from a clinical and economical perspective. But allogeneic transplantation is economically and clinically feasible and reasonable as a public health care provision, and for that sound health policy a public bank is needed. Is that what the Spanish regulation amounts to? The answer is no.

A public bank of BUC is, in a certain sense, a public good. Who is going to contribute to the existence of such good if one is allowed to keep its share for himself? Only those who are not economically powerful enough to pay the fees required by a private bank would be willing to make their parts, but they have to be altruistic enough to do so (and probably blind to the fact that others are not prevented from freeriding by the current Spanish legislation). And the reason is that there is no obligation whatsoever to

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27 In this regard see supra note 21 Larios Risco p. 1071.
29 According to the official statistics, in 2010 there were 486,575 births in Spain. A moderate estimate of the average market price of private storing of BUC in 2010 is 1.500 euros per unit (approximately 1.200$). The total cost of universal autologous use will amount to almost 600 million dollars per year.
partake in the effort: parents in Spain are absolutely free to abandon or destroy the umbilical cord with its blood and valuable stem cells. But on the other hand, under that same legislation, only those who choose not to discard the BUC and store it for the autologous use are actually expropriated. Therefore, in our perverse current legal scheme, one can dispose of the BUC but not adequately cryopreserve it for oneself.30

In my view, a more congruent system would look very much alike the military draft. If we have come to the conclusion that, as many institutional boards of experts, several medical associations and the scientific community at large, have affirmed, the allogeneic transplantation of stem cells from the BUC is a worthwhile enterprise, but that in order for it to be truly achievable (i.e., with enough coverage for a whole population taking into account its ethnic diversity) we need a critical mass of units, then we should distribute the “burden” of the contribution in a fair manner: if there are not enough volunteers we should make donation mandatory. Because we don’t need units from every birth, running a lottery seems the fairest way of filling that gap.31

4. BUC as Private Property? Fairness as a Trump to Private Property

This system that I favor has been labeled as a “public-good” approach to the use of BUC. It offers clear advantages to the “private interest” approach, currently prevailing in many countries, in terms of efficiency and fairness, but the major hurdle that has to overcome is certainly the “property issue”. For the conservative Government of the Autonomous Community of Madrid, as well as for other legal commentators, the current regulation contradicts several and important principles stated in the Spanish Constitution pertaining to a “free-market” economy (article 38 of the Constitution), as well as the property-rights of the Spanish people.32 My hypothetical scenario in which there is a general mandate to provide the

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30 Maya Sabatello has warned me that for some cultural and religious minorities the umbilical cord is either non disposable – Chinese women are expected to eat it- or mandatorily disposable – in some indigenous groups it is thought that it should be hurried in order to avoid the spirits from hunting it. Beliefs such as those might justify an exemption from joining the common effort that I advocate, but do not justify, for reasons based on fairness, to be granted with the benefits of a common enterprise to which no contribution is made, albeit for deep religious or cultural commitments. On the other hand, as I will later discuss, it could be the case that should the cells from the umbilical cord be conceived as an object of property rights, one of the rights comprised by the idea of “property” is the so-called ius abutendi (right to destroy). Elsewhere I have defended the idea that the right to destroy is subject to certain limitations when a significant social benefit is at stake and that is the case with the BUC; see “Transplantation and the Trolley Case: Why not Confiscate Cadaveric Organs?” (manuscript 2012).

31 In the case of Spain, according to the National Plan, and based on a statistical estimation made in the US, the number of units needed is 60,000. The official data indicates that the total number of cord blood units at December 31, 2010 was 47,053; see Newsletter Transplant, 16 (September 2011) p. 56. Available at the Organización Nacional de Trasplantes webpage, http://www.ont.es (retrieved March 8th 2012).

32 For a very illuminating analysis see Munzer, supra note 15 pp. 517-522.
BUC would arguably be even more blatantly offensive to those constitutional tenets. But beyond the constitutional controversy, would that public-good approach be really unethical, offensive to basic moral rights or principles? Could that sacrifice be counteracted by the satisfaction of some other equally important rights or principles? To deal with these queries I now turn.

A long tradition which goes back to John Locke, Samuel Puffendorf and Hugo Grotius, and, more recently to Robert Nozick,33 establishes as axiomatic that we are proprietors of our bodies. However, human organs and tissue cannot be easily characterized as “property”, as decades of jurisprudence and legal commentary attest. At least they do not fit well within the category of “ordinary” property, which is contingently separable from us.34 Nevertheless, we certainly consider that my body and its parts belongs to me, and yours to you, and his to him, etc.35 Therefore we have certain “rights” over our kidneys, tissue, or cells, but the fact that we stand for those rights does not make our body or its parts tantamount to other appropriable material objects. A kidney, for example, cannot be “inherited”.36 Some of our personal rights are “property rights” due to the fact that we can transfer them and profit from the exchange; others are not, and even others are “limited property rights” in the sense that our legal power is limited to donation (such as with the corpse after we die or with living gifts like tissue and some organs).37 As Alexandra George has put it in her insightful overview of the topic: “Legal approaches to the control of the human body and body parts have emerged as a contradictory jumble of legal principles”.38

According to Munzer’s pluralist theory of property,39 there is property over the BUC because, contrary to other corporal wastes, it has utility and monetary value. However, Munzer assumes that a full-fledged, imperialistic idea of property cannot be projected over the BUC.40 As Munzer has said, the BUC is special property within the category of the special property that constitutes the human body and its components because, as opposed to

35 See Penner, supra note 34, at 121-122 and Munzer, supra note 33 p. 43.
37 See Munzer, supra note 33 p. 56-57.
39 In Munzer’s own explanation, the theory is “pluralist” because it comprises three irreducible principles: utility-efficiency, justice-equality and desert based on labor; see note 33 p. 3. Historically, that was also the case of human hair, human skin, breast milk or blood, as it is today, in some jurisdictions, with human eggs; see Stuart Banner. American Property, A History of How, Why, and What We Own, (Cambridge (Mass.)-London: Harvard University Press, 2011) pp. 242-246.
40 See Munzer supra note 15 pp. 509-514.
other tissue and organs, the use of umbilical cord is not invasive. Nevertheless, for Munzer: “... it would be unconstitutional for the government to conscript cord blood for the use of the first person to need it”. Such law, which would be very much like the Spanish current law, would violate the Due Process of the Fifth Amendment if it does not stipulate any just compensation for the taking, and does not include an opting-out provision. It would, nonetheless, be fair from a constitutional standpoint that those parents who refused to donate receive less priority in the donation of stem cells and assume the cost of the treatment. As I said before, it seems to me impermissible to inflict such consequence when the offspring did not have any chance to be altruistic, although I agree with Munzer in that the freeriding attitude cannot go without consequences.

A vast number of concepts in jurisprudence are what the great legal theorist Alf Ross coined as “tû tû” concepts, terms that do not have an immediate reference but that comprise a cluster of different legal relations. “Property” is one of them, as Ross himself exemplified. It does not designate any natural entity or relation, but some legal consequences established by other legal norms.

Let us consider sperm and the catalog of legal relations associated with property described by Jeremy Waldron in his insightful book on private property. If one of those relations encompassed by the concept of property is the possibility of “use”, in Spain, the sperm of the deceased husband is property of the widow under certain conditions – the previous consent in a living will by the husband-, and to a certain extent: the widow may use it for her insemination within the 12 months after the husband’s death (article 9.2. of the Spanish Ley 14/2006 de Técnicas de Reproducción Humana Asistida). This is quite unique in the European context for example. On the other hand, the widow, as opposed to other “proprietors”, cannot, for instance, donate the sperm to a bank or sell it. In that sense, her “property” is extremely restricted. So it is finally the law what defines the contours of property and to begin with, if something might be private property. And I would like to claim that a fair way to determine our private properties, namely, the cluster of our capabilities or powers, is a result of having been taken into account broader societal aims beyond individual interests. As

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41 Ibid. pp. 493-495.
42 Id. pp. 517, 522.
43 Id. pp. 518-523.
47 Following with the sperm example, even the allocation of the right to its use once it is abandoned is not obvious. For a discussion of that matter and how it affects the right not to be a genetic parent, see Glen Cohen, “The Right Not to Be a Genetic Parent”, Southern California Law Review 81 (2008) 1115-1196.
McCaffery has said: “… why should we begin with the premise that the private-ness of property is absolute? This only begs all of the most important questions. It is after all part of the task of a reasonable society to come up with fair conceptions of property rights in the first instance... The “absoluteness” of private property derives its justices from other, independent goals – the social, collective good justifies and grounds the private right, not vice versa”.48

Therefore, we should not start by considering that BUC is private property as if that judgment could derive “naturally” from some preordained state of affairs or natural distribution.49 Quite to the contrary, what I would like to claim is that for many human body parts, including the BUC, its becoming private property ought to be taken as the result of a distributive justice consideration in which different factors are taken into account: the extent to which personal autonomy is compromised, but also the fulfillment of valuable collective goals that aim, precisely, to increase everyone’s opportunities to develop their life plans by means of health care. The famous “lockean proviso” responds precisely to this idea and also Munzer’s principles of justice and equality which he advocates as part of his pluralist theory of property.50 Again, it is worth quoting McCaffery in full length:

“We have grown accustomed to a certain priority of thought in thinking about property. We first determine what property is private, up-front. Then – and only then- do we feel compelled by conceptions of liberty to leave private parties alone, at least absent some strong, overriding public interest. We must in these lights first justify specific, particular social intrusions or limitations on property, for these forever threaten to be “taking” of private property... We do not have to decide matters this way... Rather than decide up-front what is private, we can hold back and keep our judgments in abeyance until the moment of ultimate private preclusive use”.51

49 In the Constitution of the Republic of Eire (Article 43) one can read: “The State acknowledges that man, in virtue of his rational being, has the natural right, antecedent to positive law, to the private ownership of external goods”. For a historical background of a similar thought in the US philosophical creed, see Banner, supra note 39 pp. 94-108.
50 Munzer, supra note 33 p. 5. Not until 1970 the welfare benefits provided by the US Government were considered a sort of private property for the recipient in the United States. See Goldberg v. Kelly, 397 U.S. 254 (1970). For a historical and theoretical background, see Banner, supra note 39 at 220. In a different context – the discussion over the right not to be a genetic parent- Glenn Cohen has also claimed how the “body integrity” foundation of our entitlement to our body and its parts does not apply when those parts – cells, tissue- are separated; see Cohen, supra note 47 pp. 1126-1127.
Before we transfer these premises to our topic, it is important to stress that even if ownership is not the accurate conceptual match for describing what sort of involvement we have with what physically constitutes us, one thing seems also clear: *prima facie*, our right to physical integrity does not allow that our body be trespassed without our consent. Munzer, as I said, claims that the use of BUC is not invasive, and that gives it its “special” character as private property. Moreover, as opposed to the ordinary extraction of blood, the procedure of obtaining BUC during labor entails minimal sacrifice.

And yet, the “use” of BUC could be perfectly and nastily invasive. Just for the sake of the argument: suppose that, for some reason, we know that the stem cells of the BUC in the womb of a particular pregnant woman are suitable to be transplanted to a child therefore saving his life. We don’t need to embark in any abstruse elucidation about property rights to argue, safely, that we cannot act against the mother’s wishes not to gain access to the umbilical cord. Imagine that contrary to her wishes we do so. Wouldn’t it be preposterous to claim that the wrongness of our action lies on its being an “assault to her property”. Her right to personal autonomy, or corporal integrity, suffices to state that we should refrain from collecting the cells from the BUC when the cord is still in her body. Similarly, think, as Munzer has proposed, on the banning of abortion. If we frame it as a “property-right” intrusion of Government, the ban should be considered as a sort of “taking” from which the Government ought to compensate all women who are forced to continue a pregnancy. That approach sounds bizarre and the reason is that banning abortion is more an issue of personal rights than one of property confiscation.

That being said, the liberty right of physical integrity is not absolute, neither in the USA nor in Europe, nor in many other jurisdictions because there might be very compelling interests at stake – people’s health in the case of mandatory universal vaccination, safety purposes for searches and

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52 Nir Eyal made me think in the different possibilities of exploiting the BUC as a resource.
53 Only when one has formed the intention to sell a body part we could not preposterously say that there was an assault on the property of the individual. But for that to be so possible, first of all the organs’ selling has to be legally possible, so, again, what might finally be deemed as property depends on social conventions and the existence of a background of legal rules; see Penner *supra* note 34 pp. 122-123.
54 As Kasper Lippert-Rasmussen has argued, it could even be the case that the self-ownership thesis is not necessary in order to claim the individual’s autonomy. It could be the case that for us to be sovereigns over our lives we don’t need the material substratum that the body represents, or that such body (too heavy to move, or with two hundred legs and arms) hinders rather than facilitates personal autonomy. In those cases, the forced donation of those limbs could be autonomy-enhancing although presumably self-ownership-infringing; see “Against Self-Ownership: There Are No Fact-Insensitive Ownership Rights over Own’s Body” *Philosophy and Public Affairs* 36 (2008) 86-118, p. 109. However, the shortcoming of fiction examples as “outlandish” as those is that the conclusion (objecting to a normative thesis) is obtained by dispelling the (real) conditions that give rise to, and make sense of, the normative thesis in the first place; see Jakob Elster, “How Outlandish Can Imaginary Cases Be?” *Journal of Applied Philosophy* 28 (2011) 241-258.
55 See Munzer, *supra* note 33 p. 420.
seizures based on a probable cause or when the intrusion is minimal, as in the practice of X-Ray or fingerprint identification, or the forced feeding of terrorist inmates who, by sustaining a hunger strike in prison, are threatening the stability of a legitimate Government.  

High Courts, Constitutional Courts or Supreme Courts across the world apply similar “balancing tests” when dealing with the scope of our right to avoid physical intrusion, although in the United States, when the interference has a rescue purpose – saving someone’s life- Courts have been more prone to adopt an absolutist view on the right to body integrity. In a very much cited case, McFall v. Shimp, a Court does not grant even the arguably marginal intrusion that the extraction of bone marrow implies when the foreseen consequence will be the death of an individual.  

In a later and very similar case, the Supreme Court of Illinois applied the same doctrine to a blood test for an eventual bone marrow transplant, in spite of the fact that at stake was the life of the half-brother of the potential donors. Even if this legal doctrine is sound – which is debatable to say the least- it does not seems fatal for the proposal that I am defending because nothing remotely similar in terms of personal sacrifice could be claimed when envisioning the possibility of forcing people to contribute to a public bank of BUC. The social benefit is, on the other hand, very significant.

5. Conclusion: From Autumn Leaves to Umbilical Cords, from Private Domain to Public Banking

Imagine a world in which the trees only grow in private gardens, and that in every garden only a particular species of tree grows. The citizens respect private property not trespassing other’s domain in order to reach the tress for any purpose. During the fall, the leaves fallen in the streets are swept and dumped. In that world it has been recently discovered that the naturally


57 Allegheny County Court, 10 Pa. D. & C. 3d 90 (1978). With inflated rhetoric, the Court states that: “For a society which respects the rights of one individual, to sink its teeth into the jugular vein or neck of one of its members and suck from it sustenance for another member, is revolting to our hard-wrought concepts of jurisprudence. Forcible extraction of living body tissue causes revulsion to the judicial mind. Such would raise the spectre of the swastika and the Inquisition, reminiscent of the horrors this portends”.

58 Curran v. Bosze, 141 Ill.2d 473 (December 20, 1990).
fallen leaves, when adequately mixed from different species, produce a substance that has an enormous therapeutic power for the treatment of mortal conditions. When the substance is produced using only the leaves that come from a single species of tree, it is remotely unlikely that it will be of any use for the person who owns the garden. However it could save the lives of many others if added to other leaves. Some citizens are considering that, if there are not enough fallen leaves in the public streets to manufacture the substance, it will make sense to access the private gardens and collect the leaves already fallen (they would not do so before they fell because that might ruin the tree). But some of the citizens argue that just because those leaves come from their trees they are also private property. Others think that such way of conceiving private property harms the majority of people in a very significant way, and that they should not proceed according to the principle “from each as they choose, to each as they are chosen”. I would stand with them in this judgment. 

Now, in the case of BUC, what should our reaction be when the parents do not merely discard the umbilical cord but refuse to donate it? Could they claim a property right that encompasses the right to destroy (“jus abutendi”)? As a way of answering the question and make my concluding remarks, I am going to rely on the three-prong framework presented by J. W. Harris in order to justify our private property over human parts, namely: (1) whether the “part” is “vital”; (2) whether we might profit from it (3) and whether its private allocation is useful.

The first prong asks us to consider whether the corporal part is vital, or whether it is linked to reproduction. In either case it should be considered private property in the sense that the individual ought to be sovereign over its use. Not being connected to reproduction, is BUC a vital organ or tissue for the survival of the new-born? Unlikely, as I have already indicated, although there is no consensus as to the exact probability of an autologous use of the BUC: the study carried by the Centre for International Blood and Marrow Transplant Research estimated the likelihood of receiving an autologous transplant to be 0.02% by age 20, 0.05% by age 40, and 0.23% by age 70 (66). Other estimates, such as the one mentioned by the Committee of the American Society for Blood and Marrow Transplantation in its 2008 report, range from 0.0005% to 0.04%.

Secondly, we have to consider if the body part is “profitable”, and, as I have been saying all along, the BUC is certainly susceptible to permanent

59 See Nozick, supra note 33 pp. 149-182. It is not difficult to perceive the Marxist echoes of this fiction. In 1842 he published a series of articles in the Rheinische Zeitung in which he denounced the Law on Thefts of Wood incorporated in the Criminal Code by the Provincial Assembly of the Rhine Province. It is also against the Marxist motto “from each according to his ability, to each according to his need” in the Critique of the Gotha Program, that Nozick raises his libertarian distributive principle.
exploitation for a wide variety of therapeutic purposes with great commercial potential. However, that profitability comes from dubious, to say the least, marketing strategies. If it were the case that the public were truly informed, there will be no such business.

The third condition is critical to my case. Harris instructs us to judge if it is practical to realize the potential of the body part “unless someone is accorded ownership privileges and powers over it”. In those cases, affirms Harris, the question “who must own it?” is of utmost relevance. In the BUC case the answer seems clear: the one who most needs it. We actualize the therapeutic potential of BUC precisely when we arrange a common pool of resources. It is certainly true that the existence of a private market of BUC’s storing is compatible with the allocation based on need. This might have been the underlying assumption in the case of the Spanish legislation. Absent transaction costs we could have “Coasian” bargains that put the BUC in the hands of those who most value them – i.e. who most need them. The problem is, as I have illustrated, that the circumstances for the Coase theorem to apply are not present: parents who store privately in a foreign bank remain immune to the demands of the public system, making it impossible even to know who might be approachable for making the offer and concluding the deal.\(^{62}\)

Now if we turn to Munzer’s pluralist theory of property we are also driven to the conclusion that BUC ought to be public property. Apart from the considerations based on the principles of justice and equality already mentioned, the principles of utility and efficiency also give support to the public property character of BUC. According to Munzer, those principles recommend that property rights be allocated “… so as to maximize utility regarding the use, possession, transfer, and so on of things, and to maximize efficiency regarding the use, possession, transfer, and so on of things”.\(^{63}\) So the key question here is not profitability or commodification but utility and efficiency.\(^{64}\) And from a collective perspective, utility and efficiency in the use of BUC is maximized when it becomes a public resource\(^{65}\).

Lastly, contrary to what Munzer considers, it could be claimed that the specialty of BUC, as opposed to other body parts, is not that its use after birth is not invasive (which is surely so) but the presence of “desert based on labor”, the third principled component of his pluralist theory. The argument would run as follows: “our kidneys and body parts are not deserved, we got them by pure chance, but women put in labor (literally) to

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\(^{62}\) I thank Glenn Cohen for pressing me on this point.

\(^{63}\) See Munzer \textit{supra} note p. 4. See the development of these principles in 193 ff.

\(^{64}\) It could also be argued, along Kantian lines, that nothing pertaining to the human body is subject to sale. I am, however, not considering this version of the so-called “commodification objection”.

\(^{65}\) Munzer himself gives room to utility and efficiency considerations for the justification of public property: “[the government] should have things to protect its citizens from misfortune”; see \textit{supra} note 33 p. 207.
create the BUC when deciding to become pregnant and to continue the pregnancy until delivery, so she deserves the fruit of that labor. It ought to be hers”. Now the obvious problem is that this argument proves too much: every human being – including all his body parts- would become the private property of our parents (mostly of our mothers). When we appeal to the desert based on labor we are thinking in the production and subsequent appropriation of something, not someone.66

So as I said before, I am prepared to assume the “ownership” of the umbilical cord before birth, as any other organ or tissue of the individual, but once it has fulfilled its function and it is no longer needed as a supplier of oxygenated blood to the fetus, its ownership might be very well follow the same fairness considerations that we ought to apply to other worldly resources, particularly those in the realm of health care, that is, an allocation based on need.67 And for that to be so, we need to strengthen our already existing public banks in a twofold fashion: not allowing the private storage and drafting the suitable pregnant women.

66 In the same vein, see Munzer supra note 33 pp. 258 ff. It is true that, in a sense, children and youngsters are the property of their parents in the sense that their autonomy is curtailed by their parent’s sovereignty over them. But this does not imply, obviously, that children can be used as mere means – as ordinary property- to satisfy the ends entertained by their parents. I owe Nir Eyal the pressure to address this issue.

67 In this I agree with Kasper Lippert-Rasmussen: “To the extent that parts of our bodies are functionally irrelevant, even dysfunctional, and less well integrated with the rest of our bodies, and to the extent that a certain use of our bodies does not involve burdensome interference with our lives, we have no substantive right of self-ownership”; see supra note 54 p. 106.