


Amulets and Cord Blood: Understanding Banking and Regenerative Medicine in Chennai, India

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ABSTRACT

Umbilical cord blood stem cells can be extracted and collected in cord blood banks, potentially to be used for stem cell transplants in the case of blood and related disorders. But some women in Tamil Nadu store dried cord tissue in an amulet to protect their children from harm and to restore health when required. I trace the *sakthi* (power) of the amulet and its contents by following puberty rites, pre-delivery rituals and food consumed, which the pregnant mother embodies, eventually to be reproduced in an amulet. What makes the amulet and its contents medicine and a symbol of regeneration, just like cord blood stem cells? Why is the amulet a preferred mode of storing cord tissue in Chennai?

KEYWORDS

Amulet; banking; cord blood; India; medicine; regeneration

Cord blood, cord tissue, and the placenta are considered the richest source of blood that produces stem cells, which can be banked. Cord blood stem cells have also shown the potential to transform into differentiated cell types when treated in specialized cell conditions (Butler and Menitove 2011) and can regenerate the entire blood system. Regeneration is “the act of something growing or being grown again”¹ and regenerative medicine is defined as “the application of treatments developed to replace tissues damaged by injury or disease.”² Whyte et al. (2002:5–6) state that medicines are substances, have powers to transform or heal bodies, are simultaneously noxious and beneficial, and in some cases are used intentionally to achieve an effect. In these senses, cord blood might also be seen as a medicine; a regenerative medicine that can be banked to be used in the future in case of blood disorders, or as dried cord blood and tissue kept in an amulet, which is believed by mothers and their families to hold regenerative powers. Having said this, what makes the amulet and its contents medicine and a symbol of regeneration, just like cord blood stem cells? It is possible, I argue in this article, to delineate the contents and power of the amulet by tracing Tamil ritual processes surrounding puberty, pregnancy, and birthing. I also ask, why is the amulet a preferred mode of storing cord tissue in Chennai?

Globally, during delivery the umbilical cord is cut to source cord blood and the cord blood unit is sorted, standardized, and classified (Bowker and Star 1999) to be stored in banks. Each unit is processed to extract stem cells to be stored in a liquid nitrogen tank, and further sorted into private, public and community banks depending on the choice made by the parents of the newborn. Private banking involves a cord blood unit extracted at the time of birth and stored exclusively for that child. Public banking, on the other hand, is available for both donors and recipients and cord blood is received via informed parental consent. A hybrid of the public-private model called “community banking” is where a group of people become a private pool of users, who pay for, and bank their children’s cord blood.³ Biobanks are seen by parents and

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Media teaser: What makes the amulet and its contents medicine and a symbol of regeneration, just like cord blood stem cells stored in biobanks in Chennai, India?

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some members of the scientific community as repositories of bodily tissue to be stored for the future as a form of biological insurance (Wagner and Gluckman 2010) or hope (Novas 2006) against the risk of disease as regenerative medicine.

In addition to this more recent (since 2004 in India, Hodges 2013) biomedical extraction and storage of cord tissue, cord tissue storage in many South Indian homes has had an established traditional importance. The umbilical cord is sometimes cut, dried, and powdered to be stored in a metal (gold or silver subject to what families can afford) amulet. This amulet is then tied to different parts of the body depending on its utility. For example, the amulet is tied to the arm of a child to ward off the evil eye or tied to the waist of a child to monitor growth. In this article, I draw attention to the “afterlife” (Arif 2016) of the amulet as a symbol and in performance representing long health, continuity, fertility, and regeneration. Furthermore, for South Asians in general, blood is often considered a repository of strength (Starr 2002:186). Blood, alongside semen and breast milk, has a certain power and energy (Pande 2009), which needs to be continuously replenished through the intake of healthy fluids (e.g. milk). Food is consequently a critical component in pre-pregnancy rituals, with people believing that healthy food will make a healthy placenta (or cord blood).

To understand what the amulet (holding cord tissue to be used in the future to restore health and as medicine) is, one must first uncover the cultural symbolism associated with the womb in Tamil Nadu. The task at hand is to uncover the complex cosmology of where and how the amulet holds power and belief and how it performs in a given cultural milieu. In this article, I present local rituals celebrating pregnancy and motherhood and the local custom of storing cord tissue in the amulet as practices that run parallel to the technocratic model (drawing from Davis-Floyd 1990) of banking cord blood in stem cell banks. The following is an account of how the amulet in its materiality and performance is associated with restoring and preserving a child’s health via tracing the rituals surrounding pregnancy and the custom of drying and storing cord tissue. In so doing, the contents of the amulet become seen as regenerative medicine as traced from the source i.e., the placenta to the umbilical cord, and finally to the *tāyittu* (the amulet in Tamil). The amulet garners different meanings as it performs in different contexts – in some cases it could be a means of restoring health and in others it could be a means of achieving prosperity, and protection.

Tāyittu (Figure 1) is the term used in Tamil Nadu for the amulet, which includes a thread tied around the child’s waist, neck, or arm. Ghurye conducted the oldest study in India on the disposal of human placentas (Ghurye 1963), in which he provides a detailed account of what is done with the placenta, navel cord, dried stump of the navel cord and the afterbirth. The dried stump of the navel cord is buried, preserved, used as medicine, or burned in many parts of India. The word *apara* (placenta) is translated from Sanskrit to mean other, another, the future, or as having nothing beyond or after. *Nadi* (navel cord) is translated to mean flowing water referring to a continuity of life into the future.

The *tāyittu* is also non-transferrable, so is about storing health for oneself or making it regenerative medicine to be used in the future. In this sense it is a practice comparable to the private banking of the child’s cord blood, where only the child (as promoted by private banks) and related family members (community banking as an extension of private banking) can use it in the future. Both the amulet and the cord blood bank (specifically cord blood stored in private banks) perform the same function – setting aside regenerative medicine for a future where disease is a possibility. The chance of falling ill and the hope of a cure in the future form an eclectic mix, creating the belief that dried cord tissue when ingested will allow a return to health. Similarly, the chance occurrence of falling ill and hoping for a cure in the future in present day healthcare gives people the choice of storing their child’s cord blood privately, in a community bank or donating it voluntarily.



Figure 1. The amulet or the tāyittu (silver), tied to a thread dipped in turmeric (Image source: Priya).

Methods

As part of a larger project exploring the rise of stem cell technologies in India based at the Graduate Institute of International and Development Studies (IHEID), Geneva, I conducted a pilot study in India (in 2015). This pilot study was conducted in Chennai and New Delhi to map cord blood banks and related stem cell facilities. Chennai was headquarters to the only public cord blood bank in India, a blood stem cell registry and multiple private cord blood banks. From selected gray literature and initial conversations with stakeholders, it was also clear that many blood stem cell transplants were conducted at a leading private hospital in Chennai.

In between interviews with public and private cord blood bank stakeholders, I met people who were banking their children's cord blood. Dr. Srinivasan at Jeevan stem cell bank directed me to EV Kalyani medical center,⁴ one of the oldest maternity hospitals located in the heart of Chennai. I met Dr. Uma Ram, an experienced obstetrician-gynecologist who invited me to observe and participate in the counseling room in Seethapathy Clinic & Hospital, a subsidiary of EV Kalyani. All my interviews were recorded with permission with a signed consent form (signed by myself and the interviewee at the end of the interview). Most of my interlocutors' names in this article are anonymized and in cases where they are identified, it is with their permission on a signed consent form. Patient anonymity has been maintained, and personal data, documents, and information arising out of this research remains confidential, i.e., only subject to my research and analysis. The study has been conducted as per the prevailing ethical guidelines of IHEID, Geneva and ethical committee approvals obtained with

concerned hospitals and biobanks in India. Data collection, analysis, and writing has been done simultaneously to prevent any loss of substantial information and to draw valuable insights and inferences continuously throughout the course of research. Having spent close to two decades growing up in different parts of Tamil Nadu, a lot of my entry points to the field (this stands true for both banks and knowledge about rituals surrounding pregnancy) were negotiated via childhood friends and their families because of whom I was better able to grasp the local and historical genealogy of the usage of cord blood.

In this article I draw on observation and limited participation in the counseling room at Seethapathy Clinic and Hospital, Chennai (between 2015–17). This is where I learnt the basics of birthing, collecting cord blood and, most importantly, the amulet. A significant period of the fieldwork involved “deep hanging out” (Rosaldo 1989) in the Seethapathy counseling rooms where I met Jiya and Priya, the two counselors who helped me better understand the local customs surrounding puberty, pregnancy and storage of cord tissue in amulets. I follow Rapp’s insight on genetic counseling: “While the language of science claims to be universal, it must, in fact, confront the local idioms with which diverse groups and individuals respond to its powerful messages” (Rapp 1988; quoted in Glasner and Rothman 1998:135). Counseling as a practice provides the space for discussing everyday life during pregnancy: food to eat, help at home, familial relationships, and problems. These conversations extended beyond the counseling room, in some cases, to Dr. Ram’s room where she would counsel the family separately. One such snippet from her office included her counseling two sisters, one of whom was pregnant with a second child. “Both of them came to me one day. I had delivered a baby for one of them and she brought her sister who was trying for a baby but had not been able to conceive. The pressure from the family was a lot. So, the one who was pregnant with a second child told me that she had a request for me.” Dr. Ram’s eyes lit up in awe and disbelief. “You know what she asked? That when she delivers, her sister will hold the placenta in her hands after the delivery. I was quite stunned. On asking why, she continued, ‘the placenta ensures a continuity of life and by holding it, my sister will conceive for sure.’” Continuity of life and long health with respect to the placenta and umbilical cord, as we shall see, were recurrent themes in conversations about birthing and in discussing the use of the amulet.

I interviewed 60 people at the clinic, including pregnant women and their respective families (spouses, sisters, mothers-in-law, mothers and, in some cases, friends accompanying the pregnant woman), initially with a semi-structured open-ended interview questionnaire, but later switched to having conversations with them in the waiting room. Through the prewritten interview questions, my intention was to survey the number of women and their families opting for cord blood banking, be it public, private or community banking. Access to the actual birthing process was also restricted and permission to access a birth and the subsequent process of cord blood banking depended on the mother giving birth, her family, and the head obstetrician available on the day. Follow up with expecting mothers at Seethapathy was a difficult task as some of them had unplanned appointments, had an early delivery, or had changed their consultant to another clinic/hospital. With some of them, the follow-up questions were very brief, i.e., in between consulting hours. With others, interviews were conducted through phone numbers shared by mothers themselves. Both Jiya and Priya helped with the follow up in the counseling room.

There were days when there were no women or families present for counseling. Jiya, Priya and I would spend our time “waiting” for hours, discussing our respective futures, families and partners. Waiting as a method (Janeja and Bandak 2018) is crucial for anthropological inquiry as “waiting with” can offer critical insights into the everydayness of hope, uncertainty and expectation. This was certainly the case with most of the expectant mothers at Seethapathy. Waiting also included participant observation, during which I would help Jiya fill out the green cards containing patient details, give out plastic bottles for urine samples, and give directions to the ultrasound room. Waiting also involved listening to couples fighting in hushed voices, women going into labor in the waiting room and observing nurses helping them on to a stretcher or a wheelchair.

Regeneration, medicine and banking cord blood

Lakshmi, a Chartered Accountant, was expecting her second child. I asked her if she wanted to complete my questionnaire:

I know what you are going to say about banking. Trust me, you can't convince me into banking my child's cord blood. Because you know, for generations . . . my grandparents and their parents have stored the *thoppalkudi rattam* [cord blood] in small silver amulets and I don't see why I should bank in these banks when it can be stored at home for free . . . I can assure you that storing dried cord tissue works because it has been happening in many South Indian homes for centuries.

In referring to these practices in everyday life, it is almost as if there is a mirroring of the cultural past on the social present, and these conversations represent a cultural-historical continuity that is inherently considered a part of the everyday. As Ramanujan mentions in his essay *Is there an Indian way of thinking?* (Ramanujan 1989), the “modern” (in this case, consider the sudden interest in stem cells as miracle cells) becomes one more context of a preexisting meta story. In saying, “why should I bank in these banks when it can be stored at home for free” (referring to the amulet), Lakshmi alludes to a past, a practice and a history that many South Indians follow as custom. Or as Bharadwaj (2016) explains, it is almost as if there is a double entrenchment of tradition; that is, the custom of storing cord tissue in amulets is made new by storing cord blood in the bank. Ogundiran states that regeneration or renewal – referring, in his case, specifically to economic regeneration – can take two forms: one which happens after a collapse, crisis or stagnation, and another where regeneration is considered a “regularized process [...] making use of familiar symbols, tradition and practices to facilitate reinvigoration” (Ogundiran 2019:155). In the case of the amulet, while the crisis is seen as disease, regenerating health is rooted in the regularized process of ingesting the contents of the amulet as medicine.

Moreover, conversations in the counseling room are about an imagined future in the present, which brings alive kin relations and decision-making. Sakeena (a homemaker) walks in pregnant wearing a white saree. Jiya enters the routine check marks for health, weight, and blood pressure in the green file. She continues to ask Sakeena in Tamil if she knows about cord blood banking and if she would like to bank with any of the banks in Chennai? Sakeena seems unsure, asks us to wait a bit and comes back with her husband.

Sakeena: This is my husband (*smiles*). You explain, he will listen.

Jiya finishes her explanation and asks if they would like to sign the consent form so that collection of cord blood on the day of delivery is hassle-free. Throughout the discussion, the husband, who seems rather shy looks down at the floor, listening intently.

Sakeena: (turning to her husband) What do you say?

Husband: I understand everything, but the decision will be taken by my parents. I will ask and tell you.

Gender relationships, power dynamics and final decision-making surrounding reproduction are brought alive in the everyday of the counseling room. Malar, also pregnant, walks into the counseling room in pain, unable to sit or stand. She is wearing an aubergine salwar kameez and mentions uterine spotting since early that morning. Jiya checks her pulse, blood pressure, and weight and helps her sit down. She begins sobbing and blames her mother-in-law for all that she is going through.

[*in Tamil*] Always, I must do the housework. How do I do it like this (pointing to her belly)? If I ask, she says in my time, we used to work till delivery. What “pain . . . pain” you are screaming, I don't understand, she says. My man also does not listen to me. I must work *ma* . . . how will I deliver, I don't know.

As van der Sijpt (2010:1778) suggests in her study of Cameroonian women, social pain and disorder lead to physical pain and disorder. Therefore, Malar's physical woes increase when her mother-in-law and husband do not consider her pain and suffering during pregnancy and yet she must please them with “work.” When Malar's mother-in-law does not understand her incessant complaints about the

pain during pregnancy and when Sakeena's husband mentions that his parents will make the final decision, two things happen: Malar's mother-in-law and Sakeena's husband's parents legitimize their authority and extend their roles of nurture by being "elders." When Rapp (1988:80) writes about maternal health practices and genetic prenatal testing, she talks about how the discourse surrounding reproduction considers women's role as nurturers and makes them part of an "enduring morality play." This role of nurture in the counseling room extends to different members of the family; this is also evident in my interaction with pregnant women who nonchalantly referred to "elders in the family" or "parents" or "grandparents" who are "aware" and thereby "know more" about the exact process and customs surrounding birthing. These phrases and statements also establish the pregnant woman's body as a "social body" (Rapp 1988) where the importance of extended kin relations represent a family dynamic where decision-making and choice do not lie entirely with the expecting parents. The unborn child is not entirely their own but belongs to the family and will become a representative of the family for generations to come. Statements from women and their families like "this has been happening for centuries in my household" or "banking is nothing new" demonstrate authority, power, and expertise in decision making.

As van Hollen explains in her study of HIV and childbearing women in Tamil Nadu, decision making in a counseling room is not about favoring one factor over another. Rather each woman's decision making is subject to a synthesis of factors, including, for example, religious belief, inter-familial relations, and dominant cultural and marriage practices (van Hollen 2007). Similarly, as we have seen, counseling about cord blood banking in Chennai brings to the fore family dynamics, choice making and the existence of an age-old practice of storing cord blood. Cord blood banking is presented to clients as preventive medicine to be stored now and used in the future. With respect to the amulet, Priya added that the amulet is opened, its contents mixed with milk and given to the child to drink in cases of high fever or chicken pox. If the amulet is not used, it is tied around the waist or the neck of the child to ward off the evil eye and stored as medicine exclusively for the child. To understand what the amulet is, one must first uncover the cultural symbolism associated with the womb in Tamil Nadu. In other words, how does the amulet come to signify medicine, health and regeneration considering that objects associated with birth and birthing are associated with power and danger? What rituals, customs practices, and beliefs, metaphorically and in practice, lead to the making of the contents in the amulet or give it *sakthi*?

Regeneration and medicine – from the placenta to the umbilical cord

Sometime in October 2017, I see women, some with their husbands and others with their mothers or mothers-in-law enter the counseling center at Seethapathy, heavily pregnant, wearing colorful bangles and in some cases with turmeric paste on their hands and face. It is a particularly busy day and Priya is sitting beside me. She is a research associate with a project funded by a foreign university in collaboration with the clinic that collects placenta and cord tissue for genetic screening and prenatal diagnosis of diabetes. Priya tells me that she wants to get married to a "nice" guy and have children. She points to one of the women wearing colorful bangles sitting across us in the waiting room and turns to me and asks if I know why they wear these bangles? She smiles again and reminisces about the day her family celebrated her "coming of age." It was a week-long ritual, she tells me:

[...] See, it becomes an event for social gathering. The girl's mind-set [...] you know, no? [...] To calm that down . . . then she has company. The relatives bring food. The mother's brother's wife and father's sister have the most important role. They will bring nice food to the girl to eat. It becomes a celebration. In the first few days, she is made to eat raw egg with gingelly (sesame, she further explains, as I look puzzled) oil. Gingelly calms down the body's heat and the egg is for furthering egg production . . . but you know in my case, I am vegetarian . . . I took a half-boiled egg (she smiles). So, I took it for seven days and vomited on the eighth day. I couldn't take it and haven't had it since then. Also *urad dal* (black lentils), you know, that is mixed with palm jaggery and given to the girl every day. It strengthens the backbone and the uterus.

The practice of bringing food to the girl's household limits, controls and cools her powers as are manifested in her monthly bleeding (Wadley 1991:163). In South India, the wife of the mother's brother and the father's sister play an important role because in making the puberty rite public, the girl's family invites potential in-laws from within the close kin, in this case, the former's son will be seen as the potential husband (the latter's son is also considered as a potential alliance but is the second preference).

Both puberty and pregnancy are celebrated with great fanfare in many parts of South India where the girl who "attains age" (a commonly used local phrase for menarche in Tamil Nadu) can be considered of marriageable age with the commencement of the first menstruation cycle. A woman who is pregnant for the first time is celebrated like a goddess about to enter motherhood. Similarly, *Cīmantam* is a ritual celebrated in Tamil Nadu during a woman's first pregnancy and is held in the fifth, seventh, or ninth month of the pregnancy⁵. As van Hollen (2003:76–77) suggests, the primary function of the *cīmantam* ritual is to satisfy the pregnant woman's *ācai*, understood as "desire, cravings, passion" and to bless her to ensure an easy delivery and the birth of a healthy baby.

This resonates well with what Priya described as holding the puberty ritual to calm down the "girl's mind-set," as she termed it. This mind-set can also be associated with reducing "heat" and "pollution" (i.e., warding off evil spirits and cleansing). She is given foods that are seen as cooling down her aroused sexual desires. The woman who has her first menstrual cycle and the woman who is ready for her first birth are thus isolated and celebrated. Similar to this is the *Godh Bharai* ceremony held among many Hindus and Muslims in North India (in Hindi, *godh* means lap and *bharai* means to fill). Tulsi Patel (Patel 1999:429–451), in her study of Mogra, a small Rajasthani village, shows that the woman bearing the first child is showered with gifts (these gifts are placed in her lap) by the mother-in-law and her relatives, thereby approving of her achievement. The expectant mother is given rich servings of food with ghee (clarified butter) and milk, believed to nourish both the mother and the fetus. As Turner (1987:90–94) explains, transitory phases like puberty and childbirth represent a "crisis" situation for which a "redressive" action is required. This includes the celebration of the pregnant woman (or a woman who has "attained age") by satisfying her desires to facilitate a "reintegration" back into "normal" family life.

Priya also explained to me that the *Valaikappu* ceremony is held with the *cīmantam*:

See . . . for the first four months . . . they wear one dozen bangles. Six on each side, she is also given a black saree. This is so that the baby, which is not yet seen . . . (you know that the visibility of the tummy is only after four months) will be protected from evil eyes. Later in the seventh month, more bangles are added, and even more are added in the ninth month. It is different for different people . . . you know earlier everyone was into farming. So, there were fields and snakes. The bangles were worn to ward off snakes by their sound. The mother (*mamman*) will not get frightened and the baby will be fine . . . And bangles are also worn so that the baby can hear it. Like music . . .

The *valaikappu* ceremony derives its name from the Tamil word *valayal* meaning bangles. The pregnant mother is adorned with different colored (mostly red and green as both these colors signify fertility) bangles and each bangle symbolizes a child to be born bound in the circular cycle of life and death (Pascale 2007). For *valaikappu*, margosa or neem leaves (*veppilaikal*) are hung over the doorstep to protect the house from evil spirits. These leaves are also thought to have cleansing powers. The courtyard of the house is decorated with *kolam* (line drawings made using dry rice flour). This is symbolic of the beginning of an auspicious ritual in a particular household. Using a bunch of wheat grass tied with a thread, turmeric is applied to the woman's forehead, cheeks, hands, and feet. Turmeric (*manjal* in Tamil), Jiya tells me, when mixed with lime takes on a red color. Camphor is lit along with this paste and devotional songs are sung in praise of God. After this, the paste is applied all over the pregnant woman's body. The function of turmeric is to "cool" the body as heat is considered high in a pregnant woman (Daniel 1984:189; van Hollen 2003:90, 173–74). The status of the married woman is made visible by her *tali* – a thread dipped in turmeric flanked by black beads (Baker Reynolds 1991:38–45) – which a man ties around the neck of his wife on their wedding day, and

which she wears for the rest of her life. Turmeric is considered sacred, auspicious, and a harbinger of prosperity (Gopinath and Karthikeyan 2018).

Pregnancy is a transitional phase between womanhood and motherhood, which is celebrated with the valaikappu ceremony but is also considered potentially dangerous. As Douglas argues, the pure and the dangerous are separated by ritual (Douglas 1966), and these rituals are conceptualized around the dichotomies of life/death and hope/fear (Pascale 2007). Both Turner (1967:94–95) and van Gennep (1961) have reminded us of the danger of the liminal phase, in this case childbirth, where the status of the ritual subject (in this case the expectant mother) is ambiguous. It is believed that the woman approaches death at the time of her delivery and assumes a new life after giving birth. At this stage, both the mother and the fetus are considered vulnerable. Or, as Appadurai argues, “the entire ritual is an exercise in enacting uncertainty in such a form as to increase the likelihood of resolving it” (Appadurai 2016:77). Therefore, the uncertainty of sakthi (power) in the woman’s body going through transitory phases like attaining age and pregnancy is resolved and controlled by the cimantam and the valaikappu rituals.

Vali in Tamil means pain and is a general reference to describe all sorts of pain in the body. The word also means strength, force, or power. As van Hollen explains, women bear a combination of pain and danger in childbirth and are seen as the embodiment of sakthi, the goddess herself (van Hollen 2003:119). Egnor (1980:22–23) defines sakthi as “the ability to act, to make others act, to make things happen, and as action itself.” In Tamil Nadu, Egnor further explains, sakthi is “confined primarily to two areas: one, that of spiritual power, the other, that of generative power” (Egnor 1980:147–48). The generative nature refers to the goddess’ many forms. For example, the Earth is one sakthi and it blossoms in many forms, “her power is in the union of many” (Egnor 1980:147–48). Hence, she is celebrated as sakthi in many forms at certain critical events of a woman’s life: puberty, conception and motherhood.

There is an entire cosmology surrounding the womb and the power that it embodies. Power (sakthi), danger, and pain are invested in the reproductive organs of a woman and these are celebrated in the valaikappu ritual and controlled via food intake. Therefore, sakthi is inherent in the uterus, the placenta, and the stomach (food). Food intake is considered critical and is in turn connected to the health of these reproductive organs, which in turn is connected to the health of the fetus. Doniger (2013:73) further explains that, in Hinduism, the “idea of incarnation . . . Inspires the belief that you will be who you eat: you will become it in the next life.” The *Markandeya Purana* (Doniger 2013:85–86) suggests that

[The embryo] lives on what is eaten and drunk (by the mother). The sojourn of the living creature inside the stomach is meritorious and is made of retained merit. A channel called the “Strengthener and Nourisher” is attached to the inside of the embryo’s navel and to the channel from the woman’s entrails, and the embryo stays alive by that means. For what the woman eats and drinks goes into the embryo’s womb, and the living creature’s body is strengthened and nourished by that so that it grows.

In other words, food does not just signify or represent. Instead, it transforms, moves, and penetrates (Fajans 1988; Feeley-Harnik 1995:565;). The *vayiru* is translated as the stomach but it also refers to the uterus in its functions (van Hollen 2003). Consistent blood flow to the uterus during pregnancy is essential for the pregnancy to be successful and this depends on food intake. Food intake is further related to “hot” food that has to be avoided during pregnancy and “cold” food, which is taken during pregnancy to maintain the healthy development of the mother and the fetus. Hot foods are believed to cause excessive bleeding, diarrhea and, possibly, miscarriage and hence need to be avoided during pregnancy but can be taken in the postpartum period (Corbett and Callister 2012). Protein-rich foods, food high in salt content and certain fruit like papaya and jackfruit are considered hot, while milk, butter, and fish are considered cold (van Hollen 2003). Hotness and coldness are also closely linked to color and are reflected in food intake, too. Black and red are said to be hot while green and white are considered cold (Daniel 1984). Green grains (grain when harvested young), as Priya suggested earlier, are presented to a woman who is expecting during the pre-pregnancy ritual, which is symbolic of

fertility and healthy growth (van Hollen 2003). The color of the placenta after birth, for example, hints at the health of the fetus; in certain cases the umbilical cord is not separated from the placenta so that it can continue providing nourishment till it has life and blood in it (from the documentary *Born at Home*, 1993⁶).

Given the chain of power (sakthi) that these organs possess as pregnancy progresses and taking into account the danger associated with the transition from being a woman to a mother, it is clear that objects associated with birth are also invested with power and danger. Hershman (1974:289), elaborating on hair and associated symbolism among the Sikhs in Punjab, mentions: “All things concerned with the first-born are magically empowered to harm the child; this includes not only his hair but also his swaddling cloth, placenta and most especially his bones.”⁷ Moreover, “head hair, while it is a part of the body is treated with loving care, oiled and combed and dressed in the most elaborate fashion, but as soon as it is cut off it becomes ‘dirt,’ and is explicitly and consciously associated with the (to us more obviously) polluting substances, feces, urine, semen, and sweat” (Leach 1958:157). In other words, till blood, semen, feces, and hair are within the body, there is no danger, but once menstrual blood flows, hair is tonsured, or semen is ejaculated, it becomes necessary to control via ritual celebration (just like the woman is celebrated at the beginning of menstruation and pregnancy) for a thing that incites abhorrence. Similarly, when the umbilical cord is severed, the contents are to be controlled, contained, and reposed. And this is done by drying the severed umbilical cord, powdering it, and reposing it in the *tāyittu*.

Regeneration and medicine – from the umbilical cord to the *tāyittu*

An expectant mother and a homemaker, Shobha walks into the counseling room of Seethapathy Clinic and Hospital sometime in October 2017. Jiya, the counselor asks her in Tamil, “Mother,⁸ do you know about cord blood banking?”⁹

Shobha: No, we dry the umbilical cord and keep it at home.

Jiya: What do you do with it?

Shobha: I don’t know much, but if anything serious happens to the child, this is put in milk and the child is made to drink it.

Me: Does it work?

Shobha: Yes. That is what my mother says.

After this interaction in the counseling room, I walk up to Shobha in the waiting room where she is animatedly discussing something with her rather shy husband. She is wearing a bright red *salwar kameez*, has copious jasmine flowers in her hair, and is wearing colorful glass bangles on her wrist. It is almost as if she is dressed to be a bride while being pregnant.

I apologize for interrupting her and ask if she would like to tell me more about the custom of keeping dried cord tissue in an amulet at home.

Shobha: *Ayyo* (Oh dear! – she remarks and continues in English). No problem ma, actually we use the ancient method and did not do it for the first child. *Andha thoppala kudi kayavachitu* (that cord tissue is dried) we put it in metal. Later, when there is an emergency, it is used . . . still have it for my father . . . it is dried, put in metal and tied to the arm.

Me: So, it does not get infected?

Shobha: No . . . no . . . [we] still have it for my father.

Me: Is it used for healing?

Shobha: Yes, I think so.

This closely resonates with what Deepak Mehta calls the “underneath” of the material object (Mehta 2011:119–144). During his fieldwork in Ballimaran, Old Delhi, Mehta meets Khan who is in his late sixties, and his wife Ruksana Ahmad who takes Arabic classes for women. In 2005, Ruksana is diagnosed with a life threatening disease and believes in the power of the *mufti's*¹⁰ tongue and word. Khan wears a *tawiz* (amulet) given by the mufti and recites the *hadith* as his wife takes the medicine with honey blessed by the mufti. “The body animates this practice from the inside, but is also possessed by activating powers transmitted to it by words and substances concealed by the *tawiz*. Furthermore, the literal ingestion of the word by Ruksana complements this activation” (Mehta 2011:142).

As Mehta highlights, there is a certain significance, performance and power of the material, and the act of ingesting it. Ruksana believes that she “feels better” when she ingests the medicine. Flueckiger (2006:79) describes *ilāj*, or the treatment of a variety of illnesses based on prescriptions of written words on slips of paper folded into amulets. “Performance at its most general and most basic level is a carrying out, a putting into action or into shape, through individual production or through a collection of practices” (Maclean 1988:xi and Kershaw 1992:3, quoted in Robertson 2012: 102). “*Tābiz* (amulet in Bengali¹¹) is power,” explain Maloney et al. (1981) in their study of fertility, rituals, and religiosity in Bangladesh. The amulet is considered to carry the “power of incantation (*mantra sakthi*) . . . because it contains verses from the holy books” that can either be read aloud or for those who cannot recite the verses, the *tābiz* has to be worn to achieve personal desires like having a child, curing infertility and sex-related diseases (Maloney et al. 1981:46–52). Bettelheim (1962:93–94), while talking about initiation rites among the Australian Binbinga tribe mentions:

Swallowing, or oral incorporation (of the foreskin), is the most archaic method of acquiring the desired qualities of an object, if not the object itself. The first positive instinctual behavior toward an attractive object is to lessen the distance between self and object and finally, in the most archaic form, to swallow it¹² . . .

Furthermore, Frazer (1922) very meticulously detailed the myths, folklores, and legends associated with the navel string from different parts of the world. For example, the qualities of life, after life, prosperity, and continuity are associated with how the navel string or the umbilical cord is treated. The practice of the amulet tied onto the arm, waist, or neck and made to touch with the body is equivalent to Frazer’s concept of sympathetic magic which says, “first, that like produces like; and second, that things which have once been in contact with each other continue to act at a distance after physical contact has been severed” (Frazer 1922:15–18). As Mehta, Flueckiger, Maloney et al., Bettelheim and Frazer all highlight, there is a certain significance of the material, its performance in a cultural milieu, the act of ingestion and body contact that promotes healing. It is almost as if consuming the dried cord tissue with milk activates its regenerating powers and furthers continuity and health.

Akila, a biotechnology student (personal interaction, April 2018) mentioned that the contents of the amulet were given to her when she was very ill (her parents do not remember the illness, she says). The *tāyitta*, she says, symbolizes carrying one’s health to the future and that it can only be used as medicine by the child who wears it. She further added that her grandmother considers the amulet “a continuity of generation and a sign of prosperity.” The cord:

[. . .] that dries and withers off itself is taken . . . dried and wrapped in an amulet. . . either made of gold or silver and is tied around the neck or arm mostly. . . and in the hip chain of boys mostly. It is done as a tradition. . . for generations now. I am not sure about why it’s done for boys. When the kid or infant is terminally sick or ill. . . this is removed from the amulet. . . powdered and mixed in milk. . . mostly breast milk. . . and given to the child. . . It cures the kid. . . that’s the belief. . . Usually both genders wear it . . . Boys hold it for long. . . usually. It is even tied along with the nuptial thread (*tali*) when a girl gets married.

The fact that the amulet and its contents are used when the child is ill was attested by almost all women I interviewed. Akila’s point about holding the amulet for boys was first referred to by Ghurye (1963:95–173) in his study on disposing of the human placenta. Young boys are made to wear the amulet tied to a string around their waist while young girls wear them around the neck. This amulet is later tied to the sacred thread for the boy (in the case of Brahmins) and the *tali* of the girl on the day of

her wedding as a sign of continuity of life, warding off evil eye, prosperity, and health. This is also important because traditionally Brahmins do not touch or clean anything related to that which pollutes or is considered dirty, in this case, blood related to birthing (Ferro-Luzzi 1974). The amulet is also said to have powers to deflect the “evil eye,” a belief which is very common in India. Woodburne suggests that the evil eye is rooted in jealousy: “[. . .] amulets are frequently worn to attract the first glance of a person and thus avert the possibility of evil.” [Woodburne (1935:242–243); also, Hodges (2013) attests to this usage of the amulet to avert the evil eye]. Devi, a student at the counseling center, mentioned that *Swamiji* (a Hindu priest or a learned person) writes some *stotras* (hymn of praise) on a sheet (silver, gold, or brass), rolls it and the sheet becomes the *tāyitta*. Each *stotra* written depends on the caste. Devi belongs to the Lingayat¹³ caste of Karnataka, South India. They follow a guru who writes the *stotras*. The *tāyitta* is slipped through a thread dipped in turmeric and then tied around the child’s neck or arm. It is tied on a full-moon day or a no-moon day. She tells me the belief is that the *tāyitta* will keep the child away from fear, evil, and negative vibes (this type of amulet is called the *raksha kavach* in Hindi or protective armor). Transitory events like childbirth, “attaining age” and marriage, as we have seen are more susceptible to the wrath of the *drishti* (the Sanskrit word for evil eye, commonly used in South India). And the evil eye is averted by wearing the amulet as a protective armor on the body.

Jiya once mentioned that her intrigue about the cord tissue being dried and eaten led her to ask questions of people she knew at the women’s hostel where she was staying. “One aunty told me, *thoppalkudiye kayavachittu kanji le pottu koduppange, kolainde pirrakum*,” (the cord tissue is dried and added to a mixture of rice and water and if given to the woman who doesn’t have a child, a child will be born soon after), in stark opposition to Akila’s use of the amulet. Or as another mother (a homemaker) at the clinic said, when I questioned her about banking her second child’s cord blood: “If my child needs it . . . if the child doesn’t then we have no problem in donating (to a public bank). But this is our second child . . . *so pehle child ka death ho gaya* (my first child passed away) . . . so we want to keep everything for this child.” As Pande suggests in her study on surrogates and everyday forms of kinship in India, familial kinship ties in India find their basis in shared bodily substances (like blood, semen, breast milk), in shared company, and in the labor of gestation and giving birth (Pande 2009). In the first case, the dried cord tissue and rice mixture is believed to act as medicine that leads to conception and in the second case, a mother wishes to store the cord blood privately given the death of her first child. Similarly, cord blood banking rests on family as a biogenetic unit and draws on the concept of kinship with its basis in family and blood ties. Therefore, the first beneficiary of the cord blood unit is the child whose blood is banked. The cord blood unit then belongs to family members if an exact match is established, and finally to the community of people who have come together to invest in the processing and storage of the cord blood unit as regenerative medicine.

Conclusion

I began this article by presenting Lakshmi’s preference to store cord tissue in the amulet over storing cord blood in a bank. After this conversation with Lakshmi, I wondered if the amulet and bank were juxtaposed in practice, similar in function or simply existed in parallel as choices to be made by parents. Over many conversations with other women and their families, the aim was to piece together a complex cultural setting of how the practice of storing cord blood and tissue in the amulet is animated (i) by treating local customs and rituals surrounding puberty and pregnancy as practices celebrating regeneration and (ii) where “regeneration” encased in the amulet is conceptualized as both material, medicine and a symbol of health and continuity. By tracing the local ritual of *cimantam* and *valaikappu*, my objective was to present a practice of celebrating motherhood by considering food, pain and the *sakthi* that the woman embodies. Most puberty and pregnancy related rites in the Tamil culture celebrate the fact that the uterus, placenta, and the umbilical cord carry this *sakthi*, which nourishes the child during pregnancy. Post childbirth, this *sakthi* (power to regenerate) is captured to be encased in the amulet, as dried and powdered cord tissue. The amulet is believed to embody health

and regeneration, continuity of life from the mother to the child and prosperity. Ingestion of the contents of the amulet is seen as an act of “returning to” or regenerating good health, qualities and properties that were imbibed when the fetus was in the womb. The amulet draws our attention to a cosmology of life that plays out in the everyday in its performance as a symbol of prosperity, fertility, protection, regeneration and afterlife.

As in the pre-pregnancy ritual, women’s reproductive powers are separated, celebrated and controlled, it can be said that cord blood- rich stem cells are separated from the woman’s body to be part of a “technocracy” where these cells become one with the mechanical process of bioeconomy. It is clear that the tension between science and ritual is of maintaining control over life and body (i.e., cord blood) and after-life (i.e., cord blood after it is detached from the umbilical cord) itself: pay and bank cord blood stem cells or store them in amulets to be used in a future where “staying healthy” or “disease-free” is the norm. This makes the practice of storing in the amulet and banking cord blood similar in their function of reposing regenerative medicine. Given the rich cultural symbolism associated with the womb and its sakthi (in terms of food, pain, and age – old celebratory rites) combined with the decision-making power of elders in the families, the amulet is a preferred mode of storing cord tissue. Of course, some parents preferred banking cord blood over the amulet in instances where fear of losing a child to disease was high. In other words, parents wished to store “everything,” in case the child falls ill in the future.

What Lakshmi, Priya, Shobha, Akila, Devi and their families discussed was the traditional method of storing cord tissue in gold or silver amulets at Seethapathy in Chennai. Conversations at the counseling center made it clear that cord blood and its storage in South India did not necessarily mean glitzy labs but also necessitated a closer look at how rituals surrounding birthing and local customs play a crucial role in understanding cord blood and its banking in Chennai. For me, the discovery of the amulet was accidental while conducting fieldwork at the counseling center in Chennai. What began as a daily routine of asking women and their families about banking their cord blood stem cells, lead to intimate discussions about birthing, life during pregnancy and understanding cultural objects (like the amulet) used to store the umbilical cord. Therefore, umbilical cord blood stem cells as medicine generate meaning not only as units banked in cord blood banks but also dried cord tissue in the amulet.

Notes

1. Regeneration. (n.d.) In *Cambridge Online Dictionary*. Retrieved from: <https://dictionary.cambridge.org/dictionary/english/regeneration>.
2. Regenerative medicine. (n.d.) In *Online Encyclopedia Britannica*. Retrieved from: <https://www.britannica.com/science/regenerative-medicine>
3. I have expanded on the science and marketing behind public, private and community cord blood banking in my doctoral thesis (Panwar 2020b).
4. EV Kalyani Medical Center was founded in 1949 by Dr. EV Kalyani, the first woman MD in Tamil Nadu with the mission of “providing affordable healthcare across generations” and “providing quality healthcare efficiently and ethically.” Seethapathy Clinic & Hospital took over operations of EV Kalyani 2013. Available at: <https://seethapathyclinic.org/whoweare.php>.
5. The growing-up years of my life were spent in various cities of Tamil Nadu. My first memory of attending a cimantam is still vivid. It is 8 am in the morning sometime in 2003 and my mother has taken me with her to attend a cimantam function in a town, south of Madurai city. As we enter, we are greeted by a group of women surrounding the pregnant woman and applying turmeric and sandalwood paste with the help of a bunch of grass to touch the head, arms, and legs in a pattern. She is wearing a bright green and gold *kancheevaram* silk saree (the woman’s mother-in-law mentions that it is the same she gave her on the wedding day). The saree is complemented with the gold adorning her neck, waist, and ears. Her arms are full with colorful bangles varying from bright red, green, pink, and gold and the feet are immersed in water placed in a plate of silver. Women and men (close relatives) bring offerings of sarees, food, and other gifts and wash her feet with the water in the plate almost as if she is the goddess incarnate herself. Her husband is wearing a *veshti* (dhoti) and white silk shirt as sometimes he stands by her and at other times he welcomes people.

6. “Born at Home” is a documentary produced in India highlighting the rural birth practices in parts of Bihar and Rajasthan. It focuses on the role of the *dai* (mid-wife) as a traditional birth attendant and sheds light on the advantages of home birthing practices over giving birth in hospitals. Available at: https://www.youtube.com/watch?v=_aWHWnoaSc8.
7. Furthermore, “[...] The reason why the first-born should be singled out for acts of sorcery is unclear, but the first child is especially important to a woman because he marks the establishment of a woman in her husband’s home – most significant of course is the fact that the first child has the effect of changing the status of a man and woman by turning them into parents” (Hershman 1974:289).
8. *Amma* or *Ma* is a very common term used in Tamil Nadu to affectionately and respectfully refer to any woman, related or unrelated.
9. All translations from Tamil to English are mine.
10. *Mufti* is an Islamic legal authority who provides a legal opinion to a private individual or judge. Retrieved from: <https://www.britannica.com/topic/mufti> (n.d.).
11. Bengali is widely spoken in some parts of North East India, specifically West Bengal and Bangladesh.
12. Along similar lines, Campbell notes that the practice of placentophagy or eating one’s own dried placenta as medicine is growing in Western cultures. The placenta is dried, steamed, and encapsulated for ingestion (Campbell 2019) to help with postpartum depression, producing breast milk, reduce postpartum bleeding and in some cases transport nutrients like iron.

With respect to the amulet, metals like copper, silver and gold are known for their anti-bacterial properties. Silver specifically has been known for its curative properties, preventing food spoilage and preserving water from contamination. It inhibits bacterial growth by suppressing respiratory enzymes and interfering with their genetic functions (Galdiero et al. 2011), making storage and preservation of cord tissue in these amulets infection-free.

13. Lingayats are members of a religious sect in India. The name is derived from *linga* and *ayta*, together meaning “the people who bear the *linga* (phallic symbol).” This is a literal description, as members of the sect wear a small stone phallus somewhere on their body. Men carry them in a silver box suspended on a thread or scarf around the neck, while women wear them on a neck-string under their clothes. The *linga* is the symbol of the god Shiva, and Lingayats are also called Virashaivas because of their passionate devotion to Lord Shiva.

The Lingayat movement began as a revolt against Brahmanical Hinduism. It is based on the teachings of Basava (c. 1125–c. 1170), who lived in Kalyana, a small town in central India in what is now northern Karnataka state. A Brahmin himself, Basava (also Basavana) rejected the supremacy of Brahmin priests, ritualism, concepts of ritual pollution, caste, and many other features of contemporary Hindu society and religion. Instead, he preached a populist message of equality, fraternity, and individuality. Available at: <https://www.encyclopedia.com/humanities/encyclopedias-almanacs-transcripts-and-maps/lingayats>.

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