



# Cesarean sections, perfecting the technique and standardizing the practice: an analysis of the book *Obstetrícia*, by Jorge de Rezende

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Abstract

This article discusses the development of techniques for cesarean sections by doctors in Brazil, during the 20th century, by analyzing the title “Operação Cesárea” (Cesarean Section), of three editions of the textbook *Obstetrícia*, by Jorge de Rezende. His prominence as an author in obstetrics and his particular style of working, created the groundwork for the normalization of the practice of cesarean sections. The networks of meaning practiced within this scientific community included a “provision for feeling and for action” (Fleck) which established the C-section as a “normal” delivery: showing standards that exclude unpredictability, chaos, and dangers associated with the physiology of childbirth, meeting the demand for control, discipline and safety, qualities associated with practices, techniques and technologies of biomedicine.

Keywords: cesarean section; style of thought; obstetrics; normal; normalization.

In Brazil, as in many parts of the world, childbirth practices went through intense transformations during the twentieth century, and one of the foremost aspects of this has been the dissemination of cesarean sections (Declerq et al., jun. 2011; Betran et al., 2007; Progianti, 2004).<sup>1</sup> Since the 1970s, the number of cesarean sections has risen at a steady and rapid rate and, in 2010, 52% of all births in the country were by C-sections (Brasil, 2012). Cesarean sections have become an essential part of obstetric care and have helped reduce rates of maternal and neonatal mortality (Leal et al., 2012). Even so, according to analysts, the indiscriminate use of this procedure has been shown to be harmful for the health of women and their babies (Diniz, 2009; Villar et al., 2006). The dissemination of C-sections has been the subject of controversies in political, professional, scientific and lay circles, in several countries, and some academics have questioned whether or not the use of C-sections has currently become the normal method of childbirth (Sarda, 2 fev., 2011; McAra-Couper, Hunter, 2010).

The global increase in the number of C-sections performed has been related to a series of factors, both clinical and non-clinical, among which is the fact that health care practices depend on technological innovation, the value attributed to these innovations, the fact that women now demand this procedure, as well as medical-legal issues (Carbone, 2009). Understanding these factors on a more global scale can help to unveil the intricacies of this scenario; however, the local characteristics are what enable us to understand the manner and intensity of how this procedure occurs in each place. By focusing on the reality in Brazil, this article elaborates the theory that the medical-obstetric thought process developed in this country, and which is materialized in a series of practices, techniques, technologies and knowledge, has created the means which has normalized the use of C-sections. This process is constructed over time, by disseminating and showing the effects that this style of thought has produced in multiple social arenas, especially in medical personnel practices and training. For the purpose of this discussion, we have analyzed a classical work about Brazilian obstetrics, a textbook called *Obstetrícia*, by Jorge de Rezende.

In the last few years, analyzing manuals has been the object of several historical studies that investigate issues related to the dissemination of medical knowledge and the process to normalize knowledge in the field of disease (Figueiredo, 2005; Guimarães, 2008; Souza, 2009). In the case of manuals that are addressed to the general public, these analyses concentrate on the role that these publications have in building a bridge between medical knowledge and popular wisdom. In studies directed towards medical training manuals, the main focus of interest is their capacity to establish a consensus as regards certain medical opinions.<sup>2</sup>

In the more specific area of gynecology and obstetrics, the analyses that have been conducted on manuals from the nineteenth and twentieth centuries, are part of a methodological strategy of some research studies that investigate the overlaps that exist between gender, biomedicine, history and public health (Rohden, 2001; Martins, 2004). As shown in the study conducted by Martins (2004), these treatments serve as a point of reference for the medical thinking of the time, which propagated the idea of “learn so as to act.” Within a medical teaching environment, these played a central role in constructing “institutionalized knowledge related to a women’s body and were only accessible to those

who belonged to a circle of initiates and who dominated professional vocabularies and practices” (Martins, 2004. p.87).

The reason why *Obstetrícia* was chosen is due to the importance of its author in the national gynecological scene. Towards the end of the 1920s, Jorge de Rezende was an obstetrician, an intern at the Laranjeiras Maternity Hospital, who made his career as a teacher at two of the leading medical schools in Rio de Janeiro: The National College of Medicine at the University of Brazil and at the School of Medicine and Surgery of Rio de Janeiro. During the 1970s, he was director of the Maternity School at the Federal University of Rio de Janeiro (formerly the Laranjeiras Maternity School) and founder of the Post-Graduate Course in Clinical Obstetrics (Brasil, s.d.). Rezende reaped the fruits of his dedication to obstetrics during his lifetime, earning wide recognition from his fellow-specialists. As well as being nominated chief emeritus of the Thirty-third Ward of the Santa Casa de Misericórdia of Rio de Janeiro (Maternity), the library at the Maternity School at the UFRJ was named in his honor.

The academic career of Rezende marks the beginning – and at the same time – helps to establish a style of thought that sees a cesarean section as a normal childbirth practice.

### **Theoretical perspective and methodology**

Within the scope of the sociology of sciences, the role that manuals had in scientific practice and the training of professionals was the subject of pioneering research studies by Ludwik Fleck ([1936] 2010) and Thomas Kuhn ([1957] 1991). Their studies showed how these publications have a prominent role in the way these store and systemize knowledge relating to given periods of time and space, shaping the profile of science itself. According to Fleck, manuals are important instruments with which to format the style of thought of a certain area of knowledge. These direct the way a phenomenon is perceived in accordance with a hegemonic style of thought in a specific time and place.<sup>3</sup> Instead of representing the sum total of existing knowledge, these manuals are the fruit of choices that bring together certain theories to create a closed knowledge system.

The plan that determines the selection and composition (of its contents) therefore provides the guidelines for subsequent research: deciding what should be considered as a fundamental concept, which methods are said to be praiseworthy, which routes are regarded as promising, which researchers merit a position of prominence and which ones will simply fade into obscurity (Fleck, 2010, p.173).

Unlike articles that present issues from a controversial angle, these manuals show “truths,” axioms to be followed instead of discussed. When these define problems and ways to resolve these, they function as elements of thought coercion, which lend credibility to the proposals indicated (Fleck, 2010).

Based on a viewpoint that is similar to that expressed by Fleck, Kuhn sees manuals as central instruments used to preserve science on previously consolidated standpoints, that is to say, to maintain normal science.<sup>4</sup> In his view, the way these are worded and problems are presented and resolved, transforms these publications into powerful teaching instruments. By promoting concepts of accumulation and evolution based on a particular way of how to understand and

act upon scientific problems, ends up limiting students to traditional ways of thought and action in relation to science.<sup>5</sup> In order to organize the understanding that students have as regards the disciplines they have embraced, the manuals re-invent history based on this knowledge, presenting this in a linear and progressive manner, as well as excluding from their narratives any possibility of errors or difficulties in the resolution of problems (Kuhn, 1991).

The ideas that Fleck and Kuhn put forward about the role that manuals play in training students and in the practice of science, help us to reflect on how manuals have influenced the process, which has witnessed a rise in the practice of a surgical procedure that was originally indicated in cases when the lives of a mother and her child were at risk, and is now a practice that has since become widely employed, in spite of the problems that its indiscriminate use may cause.

The fact that a cesarean section has become the preferred choice of many doctors and women raises the following question: are C-sections becoming the normal form of childbirth? The contributions made by Canguilhem (2009) and Foucault (2005) help us to reflect on this issue. The former, in his famous study about normal and the pathological aspects, shows that norms are social constructs and that the process of the normalization of a determined social sphere is the expression of a collective aspiration that defines the forms of an activity, transforming this into what hegemonic groups desire for the collective well-being.

Foucault, working with medicalization and standardization processes, shows that the first implies the dissemination of medical discussions through the social fabric, inducing the adoption of some ways of living, thinking and of how to behave. These ways end up being transformed into norms that regulate life.

In the research presented in this article, such questions become a central issue as C-sections become much more than just an obstetric procedure used in certain high risk pregnancies, and are transformed into a widely-used social practice. The growing availability of cesarean sections enables this technology to be used in new ways – such as in cases when no specific clinical referral exists or even to “protect against the risk” of a vaginal birth. The increased use and acceptance of this procedure have reduced the use of other practices, which means that a cesarean section is now considered to be a normal procedure.

As regards work methodology, we analyzed the chapter entitled “Cesarean Section” as printed in different editions of the book *Obstetrícia*, by Jorge de Rezende, a work that was first published in 1963 and, in 2013, reached its twelfth edition.<sup>6</sup> We opted for a detailed analysis of the chapters included in the first edition, published in 1963, of the fifth edition, published in 1987, and the tenth edition, published in 2005. By choosing these editions, our aim is to include publications representing different decades; the reason why we chose the tenth instead of the more recent edition of 2013, was because this was the last one published during the author’s lifetime. In addition, the second and third editions of the book *Operação cesariana* (Rezende, 1992, 2006) were analyzed to obtain a more in-depth perspective of some of the issues included in *Obstetrícia*. The fact that this book, which has been seen as a benchmark in the teaching of obstetrics in Brazil since the 1960s, is still relevant today, as well as the representativeness of this author in this particular field, are the reasons why this source was chosen for an analysis of the construction of collective of thought in relation to cesarean sections as being a natural form of birth.

## Jorge de Rezende and obstetrics in Brazil

Recent historiography related to gynecology and obstetrics in Brazil was written by researchers interested in changing the views people have about a woman and her body, as well as the specific ways that this issue is incorporated into medical scientific debates (Rohden, 2001; Martins, 2004; Freitas, 2008). These studies describe how gynecology emerged, at the end of the nineteenth century, with the development of new surgical techniques – especially those involving the female organs – underlining that the institutionalization of this specialist field was determined by the creation of the discipline of obstetrics and gynecology at the College of Medicine in Rio de Janeiro, during the 1880s; the creation of the Laranjeiras Maternity Hospital in 1904; its transformation into a teaching school for the practical training of this discipline at the previously mentioned College in 1918; and, in particular, the appointment of Fernando Magalhães to direct the discipline of obstetrics and gynecology at the College in 1922 (Rohden, 2001; Martins, 2004).

The turn of the nineteenth and twentieth centuries is considered to be the period when this topic became modernized in Brazil. From this period onwards there was a significant increase in the number of scientific journals published about this specialist field, as well as debates on the subject in medical circles (Rohden, 2001). In addition, in a climate of social interest in all things to do with maternity and infancy – which were seen as a guarantee for the eugenic future of the country – new areas of philanthropy for the practice of obstetrics began to emerge (Martins, 2004). The professional work of Fernando Magalhães is seen as being central to the development of obstetrics in Brazil. At the head of the Laranjeiras Maternity Hospital and responsible for the discipline of gynecology, he encouraged the development of new childbirth techniques, thereby greatly reducing the suffering of women, which included the use of forceps, total sedation during childbirth and C-sections (Diniz, 2005). At that time, childbirth was seen as an aggressive experience, which caused great suffering and was potentially dangerous, and so these practices would reduce suffering (Diniz, 2005). In addition to his contribution towards the practice of obstetrics, Magalhães was also a prolific writer of works about the history of his subject, as well as about women in society. In the minds of the community of obstetricians, Magalhães became known as “the father of Brazilian obstetrics.”

A disciple of Fernando Magalhães, Jorge de Rezende followed in the footsteps of his master: he dedicated himself to making people aware of the history of obstetrics in Brazil, to systemize and spread knowledge about obstetric practices, to develop, establish and improve new surgical techniques, as well as create practices related to the care of mothers-to-be. During the first half of the twentieth century, he published several conference papers and articles in the *Revista de Ginecologia e Obstetrícia*. In 1941, he launched his first book entitled *Contribuição ao estudo da operação cesariana abdominal* (Contribution towards the Study of Abdominal Cesareans), which was the result of his doctoral thesis. This work was reviewed and edited in 1992 under the title of *Operação cesariana* (Cesarean Section), which reached its third edition in 2006.

In addition to *Obstetrícia*, Jorge de Rezende also published, in conjunction with Carlos Antônio Barbosa Montenegro, a shortened version of this work – as he himself describes it in the preface; the first edition of *Obstetrícia fundamental* (Basic Obstetrics) was printed

in 1976 with a twelfth edition being published in 2011. These editions, “Rezendão” and “Rezendinho” – as they are known to professionals and students in the field – stand out among other national publications on obstetrics. The dedication shown by Rezende and the capillarity of his ideas are recognized even in chapters on C-sections in works by other authors (Neme, 2000; Benzecry, 2001).

His outstanding achievements in the academic field and his intense scientific output in the area of obstetrics, especially cesarean section techniques, meant that Rezende and his works became a point of reference for several generations of obstetricians (Montenegro, 2006, editorial). His role as opinion former of Brazilian obstetrics, even today, can be seen in the continued mention of his publications in health course syllabuses for disciplines in the area of health, as well as in the public references about his principles and publications to define obstetric know-how.<sup>7</sup>

### **The history of cesarean sections as told in *Obstetrícia***

In Rezende’s work, the history of the cesarean section is described with a wealth of detail, numerous illustrations and an almost literary record on the subject. In the author’s view, discussing an operation which has practically become an essential part of obstetric care nowadays requires an understanding of its origins, its precursors and the first attempts made that have culminated in the methods used today for C-sections. For Rezende, telling the story of how cesarean sections evolved is as important as following the teachings contained in the chapter, which gives step-by-step details of the techniques involved. According to *Obstetrícia*, the origins of the practice of cesarean sections “goes back thousands of years, and is a tradition that came to us through stories told in Greek-Roman mythology ... in Persian and Assyrian manuscripts and Egyptian papyrus. The story of *partus cesareus* is, in fact, very old, even more ancient than Medicine itself” (Rezende, 1963, p.1161).

The history of the cesarean section is shown in a timeline that goes from Antiquity to the present time, divided into five periods marked according to the significant changes that occurred in the way that knowledge about the operation and how it was performed have been transmitted. During the first period – up to around 1500 – knowledge about cesarean sections was transmitted by means of myths and oral history, in that the operation was only performed after a woman’s death in the hope of saving the life of the child. The second period (1500-1876) is marked by the attempts of surgeons to perform this surgery on a woman while alive, and was still considered to be “dangerous and only to be used when there was no other way of saving a woman and her offspring” (Rezende, 1987, p.827). It was at this time that doctors such as Physick (1824) began to systemize the technique. The following period (1876-1882) was short, but significant, and was marked by the innovative *taglio cesareo demolitore* technique, which involved the utero-ovarian amputation proposed by Eduardo Porro (1876) which “received enormous publicity” (Rezende, 1987, p.831). The mutilating nature of this technique meant that this was a transition phase. “Now enriched by considerable surgical experience” and “efforts to perfect existing techniques,” the fourth period (1882-1906) marked the beginning of “a new era for cesarean sections” (p.831). The number of cases increased, and “the good rates, of positive outcomes, came

as a result of C-sections being performed on patients who had completed their full term of pregnancy, before they went into labor or just as this began” (Rezende, 1963, p.1175), which left a legacy for the following period “to adapt the technique to the needs of cases where complications existed” (p.1175).<sup>8</sup>

The rapid acceleration of the history of the cesarean section, as described in *Obstetrícia*, which is reflected in the shorter periods that occurred until the beginning of the twentieth century, is attributed to the fact that this procedure was increasingly being systematized and improved. According to Rezende (1987, p.814), the technical innovation and technologies that occurred during the first half of the twentieth century – asepsis and antisepsis techniques “confirmed through experience and constantly modernized as a result of the conquests of medicine,” the benefits offered by antibiotics, the sterilization of instruments and surgical material, the hygiene of the patient, surgical clothing, the washing of hands and the use of gloves, anesthetic techniques – all offer the right conditions to obtain better results and for cesarean sections to become definitively accepted. Given these conditions, during the fifth period of the history of the cesarean section (1906 to the present day); obstetricians were imbued with the mission to achieve that which Rezende calls the “perfect technique.” Krönig and Pfannenstiel are references at the beginning of this period, because of the developments they introduced, such as techniques for abdominal and uterine incisions.<sup>9</sup> The account given by Rezende about the accumulated and continual contributions made by the actors involved in this story reflects his belief in how the practice of cesarean sections was continually evolving;<sup>10</sup> at the same time, when describing the scenario and route taken in the unfolding of this saga, he aims to emphasize the part that Brazilian obstetrics have played, throughout the twentieth century, in the mission to improve this technique.

According to Rezende (1987, p.837), up until 1915, cesarean sections in Brazil “were only very rarely and gingerly performed,” “in the “classical way,”<sup>11</sup> and “it is during this first phase that little was produced, either in the form of biographies or references to cesareans.” In his book, the history of C-sections in Brazil becomes intermingled with the story of the founding and collaborators of his school and the master. The founding of the Maternity Hospital in Rio de Janeiro in 1904, led to “the modernization of obstetric health care” (Rezende, 2006, p.102), with the increased number of cesarean sections performed and the innovation of his techniques.

In 1915, Fernando Magalhães developed a special method of performing a cesarean section, which is the same year that Rezende described as being a benchmark in the world of obstetrics (1987, p.837):

Fernando Magalhães imagined and put into practice the changes he made to the classical procedure of performing a cesarean birth, which consisted in isolating the uterus, which is exteriorized, by using rubber sheets, which protected the abdominal cavity from contamination.

The innovations of the obstetricians at the Laranjeiras Maternity Hospital do not end there. Changes, adaptations and revisions of techniques contributed towards the continual “enhancement” of the cesarean section and “slowly but surely popularized the tomatocia procedure” (Rezende, 1987, p.837).

In 1936, we replaced the Krönig technique with the arciform segmental hysterectomy, using the Kerr method, which became, with minor modifications, the chosen method used in teaching clinics at the National College and at the School of Medicine and Surgery in Rio de Janeiro.

1955. We established the Pfannenstiel incision, in Brazil, to open the womb, during a cesarean section, which was performed for the first time at the Maternity-School. From the outset, this was opposed by the traditionalist mentality in force at the time, and it was necessary to defend this procedure in the realms of learned societies and in numerous publications and conferences. Few obstetricians today would dare to perform a vertical incision in the abdomen, as the means of access for a cesarean birth.

Throughout the different editions of *Obstetrícia*, Rezende outlines and disseminates his “preferred technique” to perform a cesarean – that which involves a transversal opening of the abdomen and uterus and the use of the finest sutures in all surgical areas. As presented in his book, the development of this preferred technique was the result of years of work carried out by the Laranjeiras Maternity Hospital, under Rezende’s leadership. By experimenting with and recombining various types of surgical procedures already described in the literature on obstetrics, their aim was to find a formula that fully met the “criteria of a satisfactory abdominal access route” (Rezende, 2006, p.126). These criteria were established by Rezende himself, from the first edition of his book entitled *Operação cesariana*, in 1941: “(1) Adequate exposure; (2) Respect the structures of the region, to ensure there is enough solidity, even before completing the dressings; (3) Minimal post-surgery discomfort; (4) Simplicity and (5) Cosmetically acceptable scar” (Rezende, 2006, p.126).

Based on the favorable results obtained from the way of performing the cesarean section developed at his school – a swift procedure, less bleeding, less infection and preservation of abdominal aesthetics – Rezende (1987, p.858) considers that “the abdominal cesarean has reached the peak of its technical enhancement.” The notion of perfection – the “perfect technique,” the “perfect surgical act” – is the logical premise of the idea of its widespread use. According to the author, a cesarean section offers women and their babies, better outcomes; therefore, it should be disseminated and become the preferred method – or the new “normal” method – of giving birth and of being born: “Without a doubt, I am a wholehearted ‘cesareanist,’ I am a cesareanist because this is an integral part of protecting maternal life as well as an unrestricted method of protecting the life of the unborn child (Rezende, 2005, p.1293-1294).”

In his presentation of the history of the cesarean section in Brazil during the twentieth century, Rezende makes no reference to the experiences and statistics of other schools of obstetrics. The focus of his textbook is on the practices adopted at the Maternities at the National College of Medicine and Surgery in Rio de Janeiro. Thus, the story of the cesarean section is told as if it were almost consensual, not only in terms of technical evolution, but also as regards the way obstetricians agreed to perform this in an unrestricted way. Possible controversies in relation to childbirth practices are mentioned only in passing and in disparaging terms: “The history of cesarean sections has been punctuated with marked cases of success, notwithstanding the whims and stubbornness of inveterate opponents” (Rezende, 2006, p.193).



In his work *Obstetrícia*, the history of the cesarean section is told by following a line of argument to persuade the reader to understand this as being a linear, progressive and rational evolution of technical procedures, which has a necessary purpose, teleology: to achieve the perfect technique.

The history is told in the form of a summons to students, who are urged to become part of this process, applying and spreading the knowledge of a simple technique that will achieve perfection. So, the generalized dissemination of a surgical method of childbirth and the biomedical transformations of obstetric practices can be seen as the predictable stages of a necessary evolution in the way humans give birth and are born: a cesarean becomes the “normal” form of childbirth in our current civilizing process, an appropriate form of childbirth for modern times.

### **Changes in the way this procedure is used: “from being a rare occurrence to becoming a universally acceptable method of childbirth”**

The idea of “freeing” the unborn child was always part of the objective of C-section births, which were designed to resolve a situation of imminent risk, putting an end to the process of pregnancy and childbirth. In the early days, a cesarean section was performed when a woman was about to die or even *post mortem* to save the child; up until the nineteenth century, the results of the most varied techniques were unfavorable (Lurie, Glezerman, 2003). Previously only used in cases of extreme urgency, the cesarean section found the right environment for its expansion at the beginning of the twentieth century: the systemization of obstetric surgical techniques, associated with other favorable elements – the creation of surgical centers, the introduction of techniques to sterilize material and the use of anesthetics, the recognition of the importance of studying and controlling obstetric risks, developing routines to monitor childbirth, and training specialist personnel – were all decisive factors (Dias, 2008). The criteria to indicate this surgery gradually transformed this new scenario, and the bases for a C-section transcend those of an outright indication – “when no possibility exists of achieving a live birth through a natural delivery” (Rezende, 1987, p.859). According to Rezende (p.858), “indications for an intervention have changed from being used solely for one reason – to avoid the death of the mother – to being a procedure that is universally employed today,” which has given other meanings to the idea of a “relative indication” and an “elective” or “optional” cesarean delivery.

The significant rise in the rates of cesarean births appears on the pages of *Obstetrícia* in 1987, and the success of this procedure is attributed to the benefits obtained, in particular as regards the reduction in maternal mortality. The author states that:

It is not surprising that indications (for a C-section) are increasing and that this is being performed more often; this goes hand-in-hand with the steady reduction in maternal mortality. This is part of the same irrefutable evidence that has led to an increased and progressive use of the C-section procedure, which is designed, above all, to protect the life of the unborn child (Rezende, 1987, p.858).

Following this edition, the frontiers between absolute and relative indications are more permeable, “indications for a C-section have become more varied and complex” nowadays. In

great healthcare centers, new clinical problems frequently emerge, which require innovative or special procedures to resolve specific cases” (Rezende, 1987, p.859).

“Indications for a C-section are related to the fact of whether this is considered to be the best available option of childbirth for the mother and her child” (Rezende, 1987, p.860). Typical cases of when a relative indication is made would be when there is a fetal-pelvic disproportion, a breech presentation in primi parturient women, fetal suffering and multiple births, and in previous cases of cesarean sections when “a cesarean section should be generously indicated, though never systematically so” (p.860). Nowadays, translated into the modern terms used by physicians and women, the following are the reasons most often given for a C-section: when the “birth canal is inadequate,” “the baby is in a breech position,” “the baby is too large,” when a woman has had “previous surgery.”

It is important to note that further flexibility for the performance of a C-section was introduced in the 2005 edition of *Obstetrícia*. In this, there is talk of a “prophylactic cesarean section,” that which is performed “only when a dystocia or presumptive risk exists to the child during the upcoming labor” (Rezende, 2005, p.1293). This idea refutes the traditional notion of dystocia:<sup>12</sup> of those unforeseen difficulties that present themselves during actual childbirth and potential problems or risks that are seen as being more likely to arise during a physiological childbirth.

From the end of the 1980s onwards, medical debates about the practice of cesarean sections were not exclusively concerned with clinical-obstetric indication criteria, but had moved on to the question of “quality of indication” and the “opportune moment” for this to be performed. Based on the premise that a C-section had reached an advanced level of evolution, Rezende concentrated his attention on how professionals could obtain the best results from this technique, which depended on good obstetrical training, not only in relation to their surgical skills, but also their knowledge and acute judgment of knowing exactly when to indicate and perform this procedure. He argues that a cesarean section produces the best results under favorable conditions, that is to say, when there is no emergency and clinical-obstetric risk situations involved. If cesarean sections had previously been used as a means to deal with risks that occurred during childbirth, in an inverse logic, at the present time, routine C-sections – which are decided beforehand, on previously established dates, and before a woman goes into labor – can avoid many such risks.

The cesarean section is still considered by some as a sign of failure of the obstetric care system, or as a last hope, when it should, instead be seen as one of the major forms of childbirth, that should be carried out, without delay, when the training and sagacity of the obstetrician so decides. To treat a cesarean section merely as a ‘last resort’ leads to a perpetual and harrowing reality: a low incidence of C-sections and high perinatal mortality (Rezende, 1987, p.859).

Other reasons and motives for performing a cesarean section gradually emerge throughout the different editions of *Obstetrícia*. The arguments in defense of the universal use of a C-section go beyond “indications” and involve the protection of the physicians against legal proceedings, optimizing the time and work of the professionals – “cesareans are performed in less than one hour, and a good deal of time is often required for obstetric care” (Rezende, 2006, p.231) – as well as the prerogative a woman to have a C-section “upon request.”

The ideas of *malpractice* and *defensive medicine* (Rezende, 1987, p.859), which originated in medical debates in the United States, are repeated by Rezende when he discusses a cesarean section as one way of protecting a physician from future legal proceedings, in cases when the perinatal outcomes are unfavorable. The “generous indication” of an operation in the private health sector is justified due to the “accumulated responsibilities on the shoulders of only one individual, who is therefore more vulnerable in the event that he performs a procedure that has an unfavorable outcome and involves the risk of certain complications, including the criticism he will receive from his patient and her family members (Rezende, 1987, p.859).

A “cesarean upon request” does not feature in the 1963 edition of *Obstetrícia*. In the 1987 edition, this category appears under “Indications and Incidences” in the chapter headed “Cesarean section.” In 2005, the discussion about a cesarean section on maternal request is treated in-depth and covers three pages of the chapter entitled “Medical-legal and ethical aspects of obstetrics,” which suggests that the reader obtains further information on the subject. Rezende (1987, p.859) considers a cesarean on maternal request as an invention of Brazilian obstetricians which has “debatable merits,” but wonders if women request these for “the most whimsical reasons: fear of childbirth, incapacity to bear the childbirth process, fear of perineum lesions, and a desire to simultaneously have a tubal ligation” (Rezende, 2005, p.1504). In these cases, agreeing to her request can help protect “the mental well-being” of a woman “who is determined to have a cesarean section, which she would end up having as a result of an intercurrent dystocia. For this reason, too much emphasis should not be given in trying to persuade a pregnant woman to have a normal birth, nor underline the risks of such an operation, which will only make her feel fearful and panic, if the need for such a procedure is indicated” (p.1505). To tell someone about the advantages and disadvantages of a vaginal birth and a cesarean section would therefore be more harmful than actually performing the operation. The rhetorical question of a “cesarean section on maternal request” should first involve a discussion with the pregnant woman about her request and the “whimsical reasons” involved. However, the arguments used to justify meeting her request do not involve the woman as the person who decides the childbirth procedure: they remove the focus from the woman who requests a C-section and transfers this responsibility to the person who recommends such a procedure; the decision to perform a cesarean section is taken by a doctor, and is duly justified as a means to protect the woman’s mental health.

The lack of training of professionals attending a vaginal birth is another of the reasons why C-sections are performed.

The current generation of obstetricians, young people who have graduated from our medical colleges over the last twenty to thirty years, this generation forgotten about or never had training in trans-pelvic operations... And since they are ignorant of the complex rules of vaginal births, it is preferable, even imperative, that they indicate a cesarean section (Rezende, 2006, p.195).

According to Rezende (2006, p.195), even performing a cesarean section requires “an apprenticeship in obstetrics,” but the surgical procedure “whole, quick and elegant” can offer better results than vaginal births, even when performed by obstetricians with little experience:

“We should say, privately, that we have never regretted having performed a cesarean section; countless times, however, we have lamented having performed vaginal deliveries, instead of performing an abdominal birth” (Rezende, 1987, p.862).

The evolution of the cesarean surgery technique went hand in hand with an extraordinary movement to extend the reasons, motives, motivations and indications for a cesarean section: and this is how a C-section went from being “a one-off requirement” to one that has nowadays become a “universal practice.” The teleological idea of the universalization of a cesarean section is a constant feature in several editions of *Obstetrícia*, which reiterate “the prediction [made by Fernando Magalhães] that earned him so much misunderstanding and so much diatribe, which pointed to the future when the only alternatives would be natural or cesarean birth” (Rezende, 1963, p.1178).

He believed that the future of the “perfect surgical act” was its “universalization,” which could dispense with long pages of discussion about its medical indications and other justifications for performing a cesarean section. However, even though he only refers to them between the lines, Rezende had his “hardcore of opponents.” During the 1970s, there were already disagreements and resistance to the interventionist form of childbirth, which had become an established practice and, in the middle of the following decade, among medical and academic circles, within the field of public health and among organized social groups huge controversies arose about the dramatic increase in the rates of cesarean sections being performed in Brazil (Diniz, 2005).

In the 2005 edition of *Obstetrícia*, Rezende declares himself to be a “wholehearted cesareanist.” Having faith in the work that was started by his master and which had been developed over nearly a century at his school, in his casuistry, in his experience, in the way all this has contributed to the knowledge and technique of a surgical childbirth, the master of Brazilian obstetrics disseminated a style of thought: if a risk is anticipated, perform a cesarean section; if a risk is imminent: perform a cesarean section; in an emergency: perform a cesarean section; to protect yourself against litigation: perform a cesarean section; to protect a woman’s mental health: perform a cesarean section; if you don’t know how to resolve a complicated case: perform a cesarean section.

### **A cesarean section: the art of obstetrics, its dangerous nature and modernization**

Rezende’s justification speech does not focus merely on the innovation and modernization of obstetric teachings and practices; he attaches more transcendent meanings to these, which emphasize the relationship that exists between technological development and social development. His defense of the universal use of a cesarean section is based on arguments aimed at showing the inexorability of the advances in medicine and, in particular, of obstetric surgical techniques. His rhetoric is constructed on two extreme representations of nature and culture, physiology and technique, the past, seen as being backward, and the present, representing what is modern: on the one hand, “expulsion,” “unpredictability,” “fatality,” “resignation,” “danger;” and on the other hand, “control,” implementing more discipline,” “simplicity,” “delicacy,” and “safety.”

The age-old art of childbirth has been transformed, and having freed itself from the process of extraction, the only other procedure available, has reduced the expulsion procedures, implementing more discipline and introducing more delicacy into the process. The resigned and fatalistic wait that is involved in a vaginal birth can be abandoned now with the development of uterine contraction physiopathology, which means that we can now control the process, reducing the stages of childbirth, monitoring them, inducing them; by improving anesthesiology, making the process painless, and, by using the services of a cesarean section, crystalized in a technique that is simple in the extreme (Rezende, 2006, p.2).

The ideology of technical and scientific progress enables this to become a natural process to substitute old practices for new ones, free of conflicts and interests, and the changes are presented as being a historical necessity. Vaginal childbirth is seen to represent “the past,” when women and doctors were subject to the laws of nature and unpredictability of physiology, while the cesarean section, instead of being used as an alternative for complicated cases, now represents the principal means of giving birth and of being born in the modern age: “gone are the days of dangerous forms of childbirth, involving internal manipulation and high forceps deliveries; now an obstetrician has other ways of demonstrating his skills” (Rezende, 2005, p.1293). A C-section represents qualitative symbols that are different from those associated with vaginal births: this involves other risks, which are minimized and presented as being controllable; medical professionals are in control of the childbirth process, rather than the human body or nature (which no longer involves other laymen who for thousands of years have been involved in childbirth); the environment is sterile, clean, hygienic; the procedure is quick and simple: “The risks involved in an intervention are being reduced every day, producing unsurpassable results that are equal, or exceed, in terms of safety, any major, surgical procedure” (Rezende, 1987, p.858).

In a scenario of infinite technological possibilities, Rezende (1987, p.837) reexamines the predictions made by his master teacher, Fernando Magalhães: “Take the path towards simplification. Complexity is an error. The problem of childbirth has been resolved: childbirth is either natural and trans-pelvic or artificial and extra-pelvic.” “Natural” childbirth in this case is understood to be a birth that involves no interventions of any kind, a birth that is “truly spontaneous, which is increasingly rare in the case of civilized women” (Rezende, 2005, p.1505).

Notions of simplification co-exist with those of complexity: the techniques and technology of a C-section are presented as being simple, and the process of childbirth runs its normal physiological course, as part of something that is complex, uncertain, dangerous and chaotic. Medical control and technology appear to discipline that chaos of physiology and transform childbirth into a “simple” event, which has now become a surgical procedure: “A universal operation: nature can no longer follow its course; the art of surgery will chart its own course. For the art of surgery there are no heavy loads, or impenetrable paths, or wasted energy” (Rezende, 2005, p.1293).

The definition of a cesarean section as “a surgical act that consists of cutting into the abdomen and the lining of the uterus to free the child that has been developed in the womb” (Rezende, 1987, p.825) as well as being home to its original senses – to save the baby when it

is not possible to have a vaginal birth – as well as adding new and broader meanings to the procedure, such as providing “freedom from the risks of a trans-pelvic canal birth,” the long hours of labor, the mental suffering and damage that a vaginal birth can do to a woman’s body. As the “culmination of technical improvements,” a C-section begins to serve a double function, to save and to protect, which establishes this as a significant method of childbirth. Seen as much as an essential necessity in emergency situations, as well as a procedure that provides greater safety to both mother and child, all have ceded to this elementary technique (even surgeons who rarely operate on this region).

The cesarean section deserved the appreciation of past obstetricians, as well as those surgeons who rarely operate, who are unskilled in operating on the abdomen, above all due to the simplicity and the time it takes to perform this surgical procedure. Two incisions and two sutures (of the skin and the uterus) is all that is involved. Older obstetricians have abandoned the practice of feticide resulting from high deliveries and other difficult births, seduced, principally, by this elementary surgical procedure (Rezende, 1987, p.846).

*Obstetrícia* and *Operação cesariana* are instruments to diffuse ideas that seek to redefine the field of the obstetric art: “This book is proud to reflect the thoughts of the Brazilian School of Obstetrics, and the author, a wholehearted cesareanist, echoes its ambitions aims” (Rezende, 2006, preface). Pride shown in knowing that Fernando Magalhães, and Rezende himself, are members of the “vanguard,” as regards cesarean section and the renewal of obstetric practices, permeates these works – vanguardism that, according to the author, the medical community took some time to recognize. Rezende made every effort to disseminate “the surgical act, obstetrics par excellence” (Rezende, 1987, p.841), and was an active part in its history, improving the technique and living through the profound changes in how this procedure was employed.

The part that Jorge de Rezende played and his works in disseminating the techniques of a cesarean section and the values attributed to this procedure – especially, safety and speed – as previously shown are not in themselves enough to explain the widespread adoption of C-sections in Brazil. This arduous task has merited the efforts of scholars who deal with the most varied subjects and methodological approaches.<sup>13</sup> Even so, it is important for us to consider the contribution that the author made towards establishing a style of thought that normalized the practice of C-sections among Brazilian obstetricians as being one of the elements of this context.

## **Final considerations**

The appropriation and development of C-section techniques by the Laranjeiras Maternity-School team, led by the obstetrician Jorge de Rezende, helped to set in motion a style of thought and new interactive and normative practices related to childbirth and birth in Brazil. The way that these events are understood and experienced, lead to the creation of new meanings and values, such as civility, control, cleanliness, predictability, safety and simplicity, which C-section techniques and technologies, increasingly “perfected,” both promote and

provide. The texts written by Rezende can be read as a narrative about the transformation of the scenario of childbirth: related environments, actors, objects, times, rituals and procedure methods. Vaginal childbirth seems to be missing from this scenario, representing an antithesis to the new characteristics of the most convenient way to give birth.

During the course of the different editions, which emphasize the continual improvements being made to this technique, *Obstetrícia* broadens the scope offered by a C-section and presents this as a technique that has the potential to be used universally: not only as a resource that is available for obstetric emergencies, but also as being far more practical and offering greater advantages than a vaginal birth, in innumerable situations. When greater recognition is given to the new meanings and values attributed to delivery and birth, the meaning of a C-section as “a surgical act” loses force, and instead this procedure is seen as an efficient “means of childbirth,” which can be used in any circumstance, either through choice or in the case of emergencies, as a substitute for vaginal births.

Within the walls of the maternity-school, the experimental work with C-sections continued – tests, re-combinations and selecting and systemizing techniques, in a continual process of trial and error – which led to the development of expertise and claims to its ownership and authority within this surgical environment, together with the Brazilian obstetric community. Rezende rightly deserves to be acknowledged for having achieved his proposition to attain “a preferential technique” for a C-section, if only because of his knowledge and for the way he dominated the whole series of techniques developed both within and outside of Brazil; by making use of his own expertise and that of his school, this obstetrician disseminated his practices and ideas in relation to C-section procedures. Investments made in improving and continuing to teach this technique are accompanied by a collection of statistical data produced in his service, that are continually shown and published in gynecological and obstetric journals and congresses, which have helped to consolidate Rezende as an “opinion leader”<sup>14</sup> together with other obstetricians in the country and the dissemination of the idea that a C-section is a useful way “to resolve childbirth.”

The style of thought developed at the Laranjeiras Maternity-School – and the development of the “fact” that a C-section is safe and useful for obstetricians and women alike – echoes in the scientific and medical teaching field, in the professional world and in several sectors of Brazilian society. In the comment section of the October 2005 edition of the *Revista Brasileira de Ginecologia e Obstetrícia*, under the heading “The issue of C-sections,” Martins-Costa and Ramos (2005, p.571) argue that “the reason why a C-section has had so many supporters in recent years is because of the increased the safety in the procedure,” which has actually transformed the procedure “according to the most recent medical literature” “into a procedure that is far safer than a natural birth and a trans-pelvic birth.” In a study conducted in public maternity hospitals in Rio de Janeiro, Dias and Deslandes (2004) found that, among younger obstetricians, a C-section is seen as the safest form of childbirth and a “powerful tool” to resolve complications, as well as a way to avoid legal and ethical proceedings. In a research study conducted with women from the public and private sectors in Pelotas, the C-section was associated with the idea of better quality health care, due to the value given to medical interventions (Béhague, Victora, Barros, abr. 2002). Diniz (1997) draws attention to other debates that appear to approve of the growing use of C-sections, such as a woman’s inability

nowadays to have a vaginal birth or the damage that this can do to her body, from over-exhaustion as the result of long hours of labor to damages to her pelvic floor.

Articles published in the mainstream media have also helped to circulate the ideas that Rezende's school has produced over such a long period. One article about C-sections, published in *Veja* magazine on May 2<sup>nd</sup>, 2001, announced that "a C-section has lost its bad reputation." Under the heading "Without pain and without guilt," the article written by Aida Veiga is based on interviews with obstetricians and professors of obstetrics. The article praises the "advances in this surgery" and its advantages – "simple, safe, causes far less pain and ensures a rapid recovery" – and shows how the procedure has won over the opinion of women as being the "quickest and most comfortable" method of childbirth, to become "the norm rather than the exception." More recently, an article published in *O Globo* – a national daily newspaper – and written by obstetricians from the Society of Gynecologists and Obstetricians of Rio de Janeiro, begins by citing Rezende as "the creator of the modern cesarean section in Brazil." The authors seek to relativize the "high rates" of C-sections, saying that they think that the limit established by the World Health Organization (15% of all births) is "outdated," and refer to the thoughts of the master of obstetrics at the Laranjeiras School: "The incidence of C-sections rises, sometimes it is stationery, but it will never fall." According to their arguments, the risks facing pregnant women in Rio de Janeiro are not connected with high rates of C-sections, but rather the way that their pre-natal care is conducted. Since they show that South Korea has rates similar to Brazil, but has lower rates of maternal mortality, they remove the focus of a possible association between surgical interventions in childbirth and maternal mortality and transfer this to a lack of care with a trained professional and inadequate resources (Braga, Burlá, Parente, 29 set. 2013).

The style of thought developed by Jorge de Rezende's School in relation to C-sections, which has been systemized and disseminated through his textbook *Obstetrícia* and other works by the master of obstetrics, during decades, have helped to shape the training and procedures used by Brazilian obstetricians, together with more general collective perceptions and aspirations, related to childbirth and birth, which appear to have become standard practices. A C-section, as a normal method of childbirth, establishes standards that exclude unpredictability, lack of control, chaos and risks associated with physiological childbirth and meet the demands of control, discipline and safety, which are attributes associated with technical and technological practices of biomedicine.

## NOTES

<sup>1</sup> The terms cesarean, C-section, cesarean operation are used as synonyms throughout the text.

<sup>2</sup> The work by Letícia Pumar Alves de Souza (2009), for example, analyzes the role that tropical medicine manuals prepared by Patrick Manson have had in forming the notion that tropical medicine involves diseases associated with poverty.

<sup>3</sup> According to Fleck (2010), a style of thought is applied specifically to the way a group, involved in a socio-cultural process of interaction, develops the object of their research. The group that organizes itself around the same style is characterized as a collective thought.

<sup>4</sup> The concept of normal science is used by Thomas Kuhn (1991) to designate the period in which the scientific community consensually follows the same paradigm, developing their research and training their



professional personnel in accordance with the same bases. During this phase members of the scientific community take part in research that reinforces or put to the test the paradigm upon which they are based.

<sup>5</sup> We use the term traditional in the sense of maintaining a way of doing science that is already consolidated, that is to say, in maintaining normal science.

<sup>6</sup> Eleven new editions were reprinted during this period. The tenth edition included the name of the author in the title, which henceforth was signed by his son, Jorge de Rezende Filho and Carlos Montenegro, Rezende's co-author in some of the chapters in previous editions.

<sup>7</sup> A typical example of this occurred during a public debate held at the Federal Council of Medicine, when one of their members addressed Simone Diniz (a research doctor involved in the Movement to Humanize Childbirth) and suggested that she should study, specifically, in the "Rezende" (as the *Obstetrícia* is known) about the best childbirth care practices performed. The description of this clash can be read in the blog site of Melania Amorim, doctor and researcher, who showed solidarity with Simone Diniz and also undertook the same studies. This blog can be accessed via the following link: <http://estudamelania.blogspot.com.br/2012/08/leia-o-rezende-simone.html/2012/08/leia-o-rezende-simone.html>. Another example is the article published by Braga, Burlá and Parente in the *O Globo* newspaper on 29<sup>th</sup> September, 2013, "Risco para as grávidas" (Risks for pregnant women).

<sup>8</sup> It may be observed that the fourth period brought important changes to the technique, such as the incision in the lower segment of the uterus and using a transversal cut, as well as the use of uterine suture. These changes guarantee made the C-section procedure a success and, in contrast, demonstrated the weakness of the technique when used in advanced stages of labor or in emergency cases, known as impure cases, which meant that improving the technique in the fifth period became a special challenge.

<sup>9</sup> During this period, an association was made between failures and the contamination of the peritoneal cavity, and surgeons made efforts to develop an 'extra peritoneal access route to reach the cervical area of the uterus' (Rezende, 1987, p.834). Krönig, on the other hand, defended the idea that contamination was more associated with the localization of the hysterotomy: instead of making a long uterine cut, he proposed that the incision should be made "in the lower passive, lean and rich segment, in connective tissue, keeping away from the main body of the uterus." Pfannenstiel, in turn, invented the transversal abdominal cut: situated "within the *mons venus* pubic hair region, fully within its boundaries, as we do, proves its extraordinary aesthetic advantages" (cited in Rezende, 1987, p.837).

<sup>10</sup> The main changes made in techniques from the nineteenth century onwards included the direction of the cut in the abdomen and uterus and the way that the surgical areas were sutured. Rezende relates that, unless there was an increase in mortality, the previous techniques were not replaced, but rather new inventions were added. It is said, therefore, that there is not just "one" technique used to perform a cesarean section, but rather multiple possibilities that can be used for each situation (emergencies, elective C-sections or during labor itself).

<sup>11</sup> The classic procedure consists in opening the abdomen through a median cut below the navel – a sub-umbilical mid-line laparotomy – and ensure a good exposure of the body of the uterus, with an incision made in the uterus. This technique is still used today, though only in specific situations (post mortem cesareans, inaccessibility to the lower segment, technical difficulties which are not easy to resolve and in cases of extreme risk): "The classic cesarean section exists because of the contraindications of the segmentary procedure" (Rezende, 1987, p.855).

<sup>12</sup> Dystocia is the "relative or absolute disproportion between the size of the fetus and the maternal pelvis and failure or insufficient uterine contractions" (Dias, 2008, p.19).

<sup>13</sup> A number of important publications interested in discussing this topic have appeared over the last twenty years and, in 2014, the findings of a national research study were published. "*Nascer no Brasil: inquérito nacional sobre parto e nascimento*" (To be born in Brazil: a national survey about childbirth and birth) which was conducted through the efforts of researchers working for several Brazilian institutions, and one of its objects was to discover the determining factors, the extent and the effects of obstetric interventions performed in Brazil (Leal, Gama, 2014). The present moment is ripe for more in-depth reflections about the use of C-section in Brazil and its process of normalization.

<sup>14</sup> The researchers Kravitz et al. (2003) present as an "opinion leader" the health professional identified within their group as being the person best suited to speak on a certain subject and exert influence on others of his profession.

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