‘Yeah, you’re pregnant all right! And he’s beautiful!’ The construction of ‘truths’ in obstetric ultrasonography

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Obstetrical ultrasound is a technology which has undergone a peculiar transformation. In Brazil what began as a medical imaging technology is progressively being transformed into a modality of consumption and ‘leisure’. In this paper I discuss the production of ‘truths’ – founded on medical and non-medical beliefs about the ‘objectivity’ of medical imaging technologies –, during obstetrical ultrasound exams. The discussion is based on ethnographic material obtained in private imaging clinics in Rio de Janeiro, Brazil. Ultrasound exams underscore the subjectivity/objectivity issue belonging to all medical imaging technologies, due to the peculiarity of being a dynamic and interactive practice. During an obstetrical ultrasound the actors are active agents in producing or reproducing medical and non-medical ‘truths’ about the pregnancy and the fetus. Those ‘truths’ play a central role simultaneously reconfiguring the pregnancy, subjectivizing the fetus, and transforming a medical practice into a spectacle. This production acts as a feedback mechanism, reassuring the actors about the healthy state of the pregnant woman and the fetus as well as reaffirming the position of medical imaging technologies as privileged producers of truths about the human body.

Keywords: medical imaging technology; objectivity; subjectivity; pregnancy; fetus.

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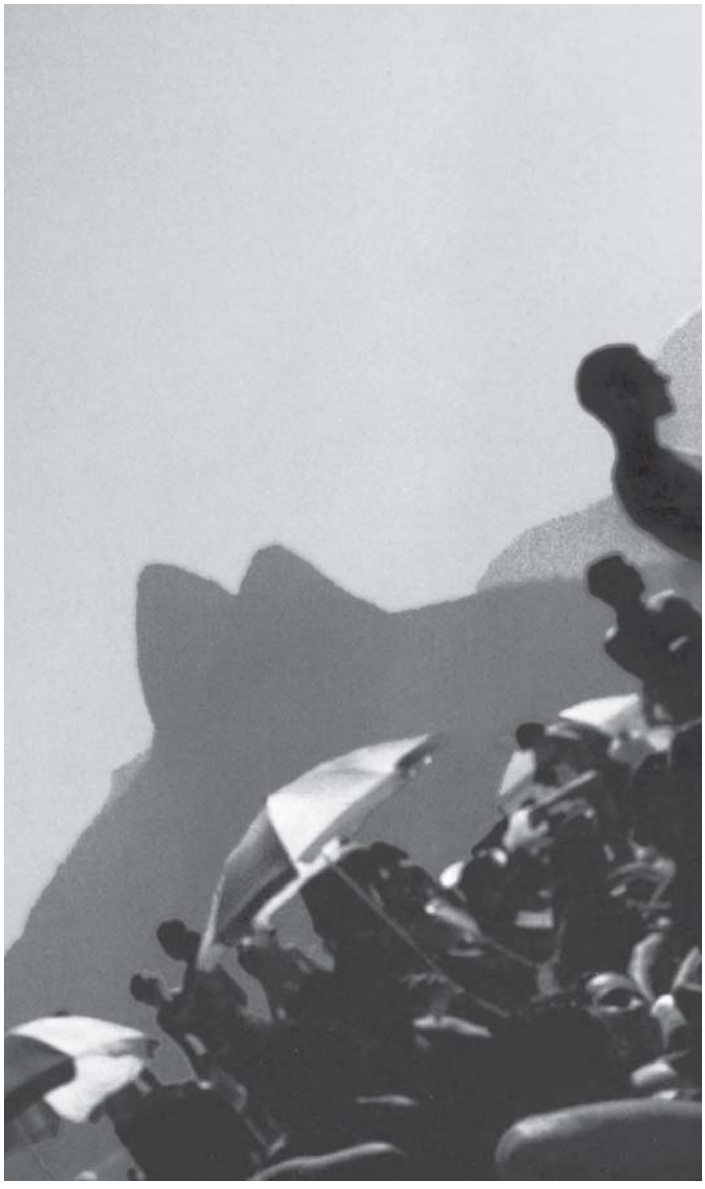
As part of the research for my PhD thesis, in which I investigated the construction of fetal personhood mediated by obstetrical ultrasound, I developed an ethnography, using participant observation, in three private ultrasound clinics (A, B and C) in the city of Rio de Janeiro in 2003.[1] In this study I discuss the production of medical and non-medical 'truths' by the actors in the observed field, some of their rather peculiar appropriations, and the consequences thereof.

Clinic A attends to mainly middle and upper-middle class clients, clinic B, middle and lower-middle, and clinic C, upper-middle and upper-income clients. This is not a rigorous division, as I did not carry out a specific investigation of the pregnant women's socio-economic profile. I based this classification on my observations of their clothing and language, apart

Barrigão em Ipanema. Foto: Analucia Limp

from the location of these clinics. Clinic A was located in the city's West Zone, home to the ascending middle class, while clinic B was located in the North Zone, where lower income groups predominate, and clinic C was located in the South Zone, an up-market area of Rio de Janeiro. In Brazil, ultrasound exams are always performed by doctors, unlike Canada or the United States, where they are usually done by specialized, mostly female, technicians. Brazil's public health system is very unreliable, and is never used by middle and upper class segments of the population, who resort to private health insurance or pay for the exams out of their own pockets.

The main focus of the observation were ultrasound exams, especially the interactions between the actors and the discursive and visual narratives produced in this situation.[2] A key question for the dynamics of the interactions between the actors present at the scene, consists of the fact that – despite the visual socialization[3] that takes place in the ethnographed universe – the person who is in the privileged position of being able to decode the hazy images that pass by on the monitor screen is the professional who is doing the exam. In this sense he is the protagonist of a situation in which the pregnant woman, her partner or others who are accompanying her are cast in the role of mere supporting actors.



There is an underlying issue that permeates and informs the whole field and the practices of the actors who were observed, regarding the objectivity-subjectivity polarity, and thus I begin by discussing it. I now highlight four aspects related to the production of truths based on fetal images, their consequences and implications, that together produce a hybrid situation[4], in so far as the subjectivization and medicalization[5] of pregnancy are deeply intertwined with discursive and technological elements.[6] The first aspect concerns the production of medical 'truths' provided by the exam, regarding the health of the pregnant woman and the fetus. The immediate consequence of these 'truths' is to reinforce the notion that pregnancy is a 'medical matter'. The second one, which is directly relevant for the construction of fetal

personhood, is the production of non-medical 'truths', often related to the pregnant woman, but more especially about the fetus. The effect of this set of 'truths', apart from providing elements that enable the health of the pregnant woman and the fetus to be monitored and supervised, is to construct subjectivities, reconfiguring the pregnant woman's physical perception of pregnancy and subjectivizing the fetus. This movement simultaneously reinforces medicalization and the culturally shared idea of imaging technology as a privileged producer of all kinds of knowledge about pregnancy. The third point to be analyzed concerns the way problematic medical truths – involving mainly the discovery of fetal pathologies – are handled in the context observed. The fourth point concerns situations that reveal the extent to which the myth of the technical image's objectivity can sometimes be harmful to pregnant women and fetuses. Lastly I discuss the various ways in which these elements interact, their complementary aspects and how they sometimes overlap in the reconfiguration of the way pregnancy is experienced.

The technical image, objectivity and subjectivity

Ultrasonography brings to the fore a peculiarity that permeates all medical imaging technologies, namely what I call the 'myth of the objectivity of the technical image'. The idea of the technical image as the producer of undisputable truths is a social construction, and is the result of a lengthy historical process. Briefly speaking, the roots of this process lie in the Renaissance – with the invention of perspective – and especially in the representational codes of the human body that appeared with the work of Vesalius, and the institution of the "anatomical paradigm" that is still in force today (Sawday, 1996). During the course of the seventeenth century, objectiveness in representation emerged as an issue, together with the establishment of the principles of the practices that came to constitute the basis of what became known as Science. The "neutrality" or "objectiveness" of the representation of the body remained an issue throughout the eighteenth century, and the invention of photography in the middle of the nineteenth century was initially hailed as the "solution" to the problem (Daston, Galison, 1992; Kemp, 1998). The invention of X-rays at the end of the nineteenth century reintroduced the issue of the interpretation of technical images of the body in a radical way (Cartwright, 1995; Sturken, Cartwright, 2001), and the medical imaging technologies that multiplied throughout the twentieth century inherited these tensions.

Regarding the production of truths, it became clear in the course of the ethnographic observation, that the subjectivity/objectivity axis was present in a dynamic and daily way in the actors' practices. In the case of medical 'truths', one can say that the 'objective' aspect was predominant, for they were presented as mathematical, quantifiable data, such as fetal age, weight, size, blood flows etc.[7] However, subjectivity was necessarily present in so far as, for the measurements to mean something, the doctor had to know how to interpret the gray shadows on the screen. For example, the professional had to know whether the whitish streak corresponded to the humerus or the femur of the fetus, for, using this data, the computer calculates its size and stage of development.

Subjectivity predominated in the case of the production of non-medical 'truths', for the attribution of meaning to what was being visualized on the monitor screen depended solely

on the imagination, values and beliefs of the actors present at the scene. When the exam revealed the existence of problems, a kind of 'tie' was produced between subjective and objective elements, as, not only did the unpleasant findings have to be interpreted by the professional, but also the way in which the news would be broken and received by the pregnant woman and her escorts were subordinated to various interactive aspects in which subjectivity was strongly present.

Besides the production of truths, another central element of the situation is constituted by the fetal images themselves, which attracted the eye in an almost irresistible way.[8] On most occasions, they become the focal point of various dialogues and interactions – or, synthesizing, these images are a crucial factor for the negotiations between the actors.

Medical 'truths'

Although pregnant women and those that accompany them gradually became more familiar with fetal images in the course of the pregnancy[9], the main translator of the images that pass by quickly on the monitor screen is, as we have seen, the professional whose eye has been trained to decode and interpret – and it is only because of this possibility that images acquire some meaning. Thus he occupies a position of prominence and authority in relation to the other actors present in the scene. There are basically two kinds of truths that, in one way or another, produce varying degrees of normatization: those about the health of the pregnant woman and the pregnancy itself, and those regarding the health of the fetus, fetal age, size and therefore its stage of development, besides the assessment of parameters used to indicate the existence of the risk of anomalies.

About pregnancy

The first truth produced during the exam, besides ascertaining the existence of a pregnancy and its location – uterine or tubal –[10] is the number of embryos. In the initial stages of pregnancy, this information and the visibilization[11] of the embryo make the pregnancy 'real' for the woman:

> G – Just look at <u>that</u>! The tiny hand near the head! [They both break out into a broad smile looking at the monitor].
> Dr. Lucia – [Showing the image on the monitor] That's an umbilical chord up there [to P.] *Dad*, can you see it?
> P – Sure.
> G – OK?... It's unbelievable... *Now I'm really believing it* [being pregnant]... until now it was just the morning sickness... (Clinic B)[12]

Another aspect investigated at a more advanced stage of pregnancy using ultrasound, the Doppler exam, referred to the blood circulation of the pregnant woman and fetus: if a circulatory deficiency were detected that could jeopardize the development of the fetus, the parameters, depending on the age and development of the fetus, could imply normatizations of the pregnant woman's behavior, whether involving the recommendation to rest and medication aimed at allowing the fetus to grow until considered 'viable'[13], able to have a natural birth or a cesarean section – or the immediate indication of the latter. There was another exam, also

linked to blood circulation, to assess 'incisura'[14], which had a probabilistic predictive character regarding the risk of the pregnant woman developing preeclampsia, a state of sudden hypertension that is potentially damaging to her and the fetus. The interpretation of these parameters, that is, the assessment of the clinical severity of the situation, varied amongst both ultrasonographers and obstetricians, and depending on the woman's previous pregnancy history, could transform the exam into an extremely anguishing situation for pregnant women.

The measurement of the amount of amniotic liquid, usually near the end of pregnancy, could also lead to the indication of a surgical interruption of pregnancy. Successive exams were sometimes carried out in order to monitor changes in the volume of liquid. The position of the umbilical chord, during this final stage, was another aspect assessed, and based on this data, obstetricians often 'recommended' cesarean sections.[15]

Bleeding during pregnancy, though varying in its degree of severity from a clinical point of view, is always alarming and is one of the situations in which an ultrasound exam is formally indicated. However, pregnant women often did not even consult their obstetricians, preferring to go directly to "*do an ultrasound exam*" (pregnant woman, clinic C). The inverse situation sometimes occurred, with the exam showing the existence of bleeding that had not manifested itself clinically:

> Dr. Silvio – [On seeing the first images] Have you had any bleeding?
> G – No. I haven´t. I only saw it in the ultrasound exam. (Clinic C)

A singular medical 'truth' that often emerged at the beginning of pregnancy, especially in clinics B and C, concerned the 'origin' of the ovum that produced the fetus. It was possible to determine this through the visibilization of the image of the luteous body.[16] Professionals dealt with this information – which is totally irrelevant from a clinical point of view – in different ways. In clinic B, Dr. Lucia jokingly mentioned the existence of a "*simpatia* of the ovaries":[17] the doctor said, laughing, that "the ovary on the right side is for girls and the one on the left is for boys", as if the origin of the ovum determined the sex of the fetus. This consists of another hybrid, somewhat paradoxical, situation of the ethnographed universe, mingling high-technology with magical or divinatory practices. The very existence of this information was due to a technological resource. The appropriation of this 'truth', in a quasi-magical sense, even though referred to jokingly, revealed an anxiety that is pervasive in the field: knowing/finding out the fetal sex as early as possible. The pregnant women used to laugh at this story when they realized how nonsensical it was. Most of the women observed had a reasonable degree of 'scientific' information about pregnancy, and therefore knew that it was the spermatozoid that determined the sex of the embryo. Even though devoid of clinical significance, the information was given in Clinic C to the clients as well. However, as there were many pregnant women who had been through processes of assisted reproduction, which often implies accompanying the ovulation process with sequenced ultrasound exams, the same information was revealed in a completely different, formal, way, and probably meant something totally different to the clientele:

> Dr. Silvio – [Let us] now take a look at the ovaries... this one here is your right ovary... various cysts, caused by ovarian stimulation... [remains silent for a while] here we have the left one... It was the right one that ovulated. (Clinic C)

In this case, it possibly meant that the entire scientific process of assisted reproduction had been successful, and the information about the origin of the ovum in a certain manner served to 'document' the 'deed of Science'.

About the fetus

The concern with fetal health is always present one way or another, in varying degrees, but not always in a conspicuous way. Normatizations with respect to fetal age and development are established, based on the approximate calculations of weight and size provided by the apparatus. In this context the image temporarily takes second place, as it is used merely as a basis for measurements that will be processed by the computer. The determination of fetal age through the ultrasound exam renders the woman's information about the date of her last period, which used to be the only way of dating the pregnancy, unnecessary, and may even take precedence over it.

> P – How big is it [the embryo]?
> Dr. Silvio – 11 mm, the gestational sack. The embryo... I haven't seen it yet... maybe I won't see it! That's because a late ovulation may have occurred… *and we will have to adjust the gestational age*. It is... for information… for her [G] – ... the birth would be on April 17, in my opinion it would be on April 24, *correcting according to today's exam*. (Clinic C)

> Dr. Henrique – Do know when your last period was?
> G – I don't remember exactly...
> Dr. Henrique – Well… don't worry… That doesn't matter... we can see here, *the ultrasound puts it at* [the fetal age]. (Clinic A)

The weight and size of the fetus, although essentially quite objective, nearly always stimulated comments, often with a valuative connotation, regarding the normality or not of fetal development. Pregnant women and their partners were proud to know that their fetuses were 'well developed'. Though fetal growth was especially important from a medical perspective, it was colored by various attributions of meaning given by pregnant women and those accompanying them, whether through the prism of gender – 'boys' should be strong and well developed, and 'girls' should be dainty and delicate – or searching for similarities with 'mum' or 'dad'.[18]

> Dr. Lucia – This is the femur, the little bone of the little leg... Guess how much he weighs? Your little baby weighs 62 grams!
> P – Well... tell me... given his age... is he nice and heavy?... *Is he strong*?... Because we disagree: she wants a little mouse, I want a big baby... well... not exactly a mouse... (Clinic B)

> P – And his weight… size, doctor?
> Dr. Henrique – It's fine, normal...
> P – [Whispering to G] *He's going to be strong like his father, and beautiful like his mother*… (Clinic A)

The revelation of the sex of the fetus was a moment when the medical, anatomical information was rarely received with indifference, and was rapidly appropriated and

transformed into a fresh source of the production of truths, which from then onwards were patently non-medical.[19]

The nuchal translucency[20] exam carried out between the 11th and 13th week of pregnancy, together with the measuring of the nasal bone, is the one that generates the most expectations in terms of assessing the risks of the existence of fetal anomalies.[21] Most women were aware of the purpose of these exams, especially the translucency exam, although they often did not have a precise understanding of what altered parameters meant. On several occasions I witnessed explanations given by doctors to pregnant women – in a more or less didactical way – and, most times I had the impression that the exact meaning escaped them.

> Dr. Henrique [somewhat irritated.] – They come for this exam saying 'Today I'm going to find out whether my baby is normal or abnormal, if he has Down syndrome or not ...'. Sometimes they are rather frustrated because the exam does not tell them this, it just gives a rate of risk, it is not to find out whether the baby is normal or not ... These days doctors' consultations are very brief, they are linked to health insurance plans, so they say to them: 'You will do the nuchal translucency exam because if there is any alteration your baby may have Down syndrome'. That's it, it's over, it takes him four seconds to say everything, and then the patient comes here and asks: 'Well doctor, is the baby normal?' And I end up having to explain. (Clinic A)

It was clear in the ethnographed universe, regarding the production of medical 'truths', that although technology dissolves many kinds of tensions, it also produces anxieties that, in a feedback mechanism, only technology can help to dispel to a certain extent. This situation is a construct that simultaneously and implicitly harbors the notions of pregnancy as a dangerous, potentially pathological process[22], and of science and technology as capable of protecting subjects from the 'perils of nature'. At the same time the notion – to a large extent stimulated and sustained by the media – that biomedicine, supported by technology, is able to predict and prevent any kind of problem, becomes crystallized among the lay public. This situation is illustrated by the following vignette, in which the doctor and I were taken aback by the declaration of a pregnant woman with a high-level socio-economic background, who attributed a somewhat bizarre meaning to amniocentesis:

> Dr. Carla asks if they already know the fetal sex, G replies that "It's a boy, I found out through the amniocentesis". The doctor, surprised, asks G why she had this exam done, as there was no medical indication for the procedure. G mentions, in a casual manner, that she had experienced "stress at the beginning of the pregnancy", adding: "He [pointing to her husband] was kidnapped when I was at the beginning [of my pregnancy], I became very stressed, and as I was worried, decided to do the exam just to see if everything was OK". (Clinic C)

Non-medical 'truths'

A vast and rich production of other kinds of 'truths' is constructed together with the production of medical 'truths', in which, unlike in the latter, doctors, pregnant women and those that accompany her, always taking the images as their starting point, act in co-partnership with boundless creativity. Two kinds of truths are basically constructed in this way. The first

involves the reconfiguration of maternal subjectivity, whose main axis is the signification (or re-signification) of maternal sensations, based on visuality. The second kind involves fetal subjectivization, which constitutes a fundamental moment in the social construction of the fetus as a Person. The construction of gender, especially after fetal sex has been determined, accounts for a significant part of this process. In this paper, I have chosen to concentrate on the discussion of the production of subjectivizing truths regarding the fetus, which I believe to be relatively independent of the construction of gender.[23]

Signifying maternal sensations

The signification of maternal sensations takes place during two distinct phases. The first occurs during the early stages of pregnancy, when the pregnant woman, after seeing the first images of the embryo or fetus, is transformed into a 'mother' for the first time during that pregnancy, as we have seen above.

> Dr. Lucia – Do you remember the date of your last period?
> G – March 17.
> Dr. Lucia – Seven weeks then! You'll be able to see the tiny little embryo... [Spreads the gel, the first images appear]... You're a *mother*… You <u>really</u> are pregnant… let's measure it... 13 mm... [G smiles, Dr. Lucia points at the screen] Just look at that! [One sees the moving image of the beating heart, and the sound of fetal heartbeats can be heard, G smiles]. (Clinic B)

> G – Is he ready... can he already move? I can't feel him yet. [The image jumps on the screen].
> Dr. Silvio – Well in fact he's moving...
> G – How cute!… That's marvelous!... (Clinic C)

The second moment occurs when the pregnant woman, who is already able to feel the fetal movements, correlates her sensations with certain parts of the fetus' body, through the visualization of the images.

> G – What's this? [Points to her left side].
> Dr. Lucia – An arm, a leg....
> G – I can feel a bone poking me... *It must be a knee*... (Clinic B)

> G – Is this a foot I can feel here? [Points to her right hypochondrium].
> Dr. Carla – No... that's her little bum... the head is over here... [shows G's pelvis] Here is the dorsum, on the right side…
> G – *I can feel quite strongly here... her bum must be quite something!* (Clinic C)

During this second phase, it is as if the pregnant women 'appropriated' for themselves and took control of their fetuses, which paradoxically reinforces the notion of the fetus as a being that is separate from her, only 'temporarily' housed in her uterus. Sometimes, the fact of being able to identify and connect parts of the fetal body to certain sensations helped the pregnant women to tolerate painful sensations, especially in the final stages of pregnancy.

> G – It's hurting here... what is it?
> Dr. Henrique – It's the foot.
> G – Ouch! He's sticking his foot into my ribs! *But it is rather cramped inside there, isn't it, my son!* (Clinic A)

Subjectivizing the fetus

Fetal activity observed through images was almost always subjectivized by the actors present – doctors, pregnant women, their partners or others accompanying them – who took it in turns to expound on the most diversified and imaginative interpretations possible:

> Dr. Lucia – [The image of the fetus turns upside down as if doing a somersault.] He's turned upside down. Now his little bum is on top...
> P – [Somewhat shyly.] Is that out of shyness? Is that why he turned upside down? *That he knows he's being watched… is that why he put his hand over his face?* ...
> Dr. Lucia – There's a tiny hand on each side... Just look at that! [The image of the hand moves].
> P – *He's waving at us...* (Clinic B)

> Dr. Silvio – Here's the image of the face ... he opened his mouth... [The image, showing a side view, opens and closes its mouth] I like that... *A child that yawns in the uterus, everything's OK*… It has nothing to do with medicine, but one has the impression… *no one yawns in a situation of stress*... (Clinic C).

> Dr. Henrique – This is the tiny little chord... [the sound of the pulse can be heard] the backbone... it's difficult to see the genitals! I'll shake him a little here [rocks the probe on G's abdomen, who laughs]. Let's go, little baby! ... *He doesn't want to show it...*
> G – *Don't play around with us like this, little baby!* (Clinic A)

Compared with the two other clinics, the fetal subjectivization observed in Clinic C revealed a more psychologized discourse on the part of the actors present, with, so to speak, 'psychoanalytical' overtones:

> [Cystic images in the fetus' lung had been visualized in the previous ultrasound and the purpose of the present exam was to monitor the problem.]
> Dr. Carla – *She is cooperating!* She's facing towards us. [Makes a gesture showing the position] I can't see anything... [the cysts].
> G – [Breaking out into a big smile] It's a gift! ... [Feeling vindicated, to P.] It was the Reiki, I told you so![24]
> P – *Mari was thinking a lot of herself, she developed a lung cyst to attract attention...* (Clinic C)

> Dr. Carla – [Finalizing the exam.] What else would you like to know?
> P – I hope she doesn't come out too early!
> G – Rogerio! *She can hear you! She'll think you don't want to see her!* (Clinic C)

'Similarities' with the family

Another set of 'truths' produced in the universe observed involved the quest for signs that the fetus 'belonged' to the family, based on physical or 'behavioral' 'similarities' with members of the family. A brief digression is in order here. The purpose of placing certain terms in inverted commas is to call attention to the production of two kinds of construct. Despite the sophistication of the technology that produces the images that appear on the monitor screen, the perception of physical likenesses is due much more to the actors' *desire* to see than to the existence of concrete morphological similarities. Behavioral is also between inverted commas to emphasize the fact that, when fetal activities and movements that are possibly reflexes are interpreted as being 'conducts' of the fetus, this shows that it is exactly through *this* way of

translating or signifying images that its subjectivization is intrinsically produced. Doctors sometimes encouraged the quest for physical likenesses, but the subject often arose spontaneously.

> Dr. Henrique – [Showing the 3D image.] Look over here! Who does he look like?
> G – Whose nose is that? [Speaking jokingly to P.] It's not yours… (Clinic A)
>
> G – [Speaking to P, provocatively, playfully] I can see he has a thick lower lip… it's not mine! It's yours!
> P – [Pouting.] I have a dainty little mouth...
> G – I don't have a… mouth... [In fact, both have thick lips, it seems to be a private joke between them.] (Clinic C)

From a 'behavioral' point of view, the supposed similarities could be charged with positive or negative connotations, and, on various occasions provided an excuse for playful bickering or bantering between couples:

> [The couple arrives for the ultrasound exam certain that the fetus is female. However, during the exam the doctor reveals that the fetus is male. G is very disappointed and P is overjoyed.]
> P – [Switches on the mobile phone] I am going to speak to my mother-in-law... my mother... my father... I'm trembling with so much emotion… *but that's my son all over!* [Being a male instead of a female] *Just to annoy his mother*... I knew it! Everything OK, doctor? (Clinic A)
> P – [Looking at the monitor screen] At this time of the day he moves more... [It's already past 7:00 pm.]
> G – *He hardly moves in the morning*... [laughs, looks at P] *just like you*. He [the fetus] only begins to function after 11 in the morning... Then he [points to P] has to be jumpstarted... [the couple laugh]. (Clinic C)
>
> [They were worried about the image that had appeared in the previous exam. In this exam everything was apparently normal.]
> G – [To P.] *It could only be your daughter, causing such a nuisance*. (Clinic C).

The appropriation and transformation of the exam's meaning by the actors involved together produce a reconfiguration of social perceptions and sensitivities about pregnancy and the fetus. As also pointed out by other researchers[25], the visualization of fetal images in a certain sense anticipates motherhood, while simultaneously socially constructing the fetus as a Person, subjectivizing, gendering and individualizing it.

Painful 'truths': breaking bad news

The *raison d'être* of obstetrical ultrasonography is pre-natal diagnosis. Thus there is a tension underlying any exam related to the possibility of discovering some maternal or fetal pathology. It is important to bear in mind that abortion in Brazil is illegal, and is considered a crime except in proven cases of rape, and even so, is subject to certain provisos.[26] There have been various judicial disputes aimed at obtaining permission to terminate pregnancies in cases of anencephaly, but the law definitely does not recognize the woman's right to choose.[27]

Despite Dr. Silvio's affirmation that "something positive is expected from obstetrical ultrasound… unlike when you have cancer, and are trying to discover whether it's in your liver… you go along more or less expecting bad news…", I had the impression on various occasions that there was an excessively euphoric atmosphere, reinforcing the idea of 'ultrasound as a spectacle', almost as a magical attempt to exorcise 'evil spirits' and banish 'negative thoughts':

> G – Translucency... is it normal?
> Dr. Silvio – Very thin... what you are going to get is an adjusted risk number... [the result of the translucency] adjusts upwards or downwards the age-associated risk… It doesn't say whether or not there is any problem… But the risk is remote…
> G – [Without understanding the explanation.] And what about us?… is the risk remote?
> P – But that is when there is… [he clearly tries to avoid mentioning the possibility of fetal anomaly]. *Let's not worry about that... talking about other people's children…* (Clinic C)

Looking at this question in a linear way, considering solely the explicit content observed, it was somewhat surprising to witness the cheerful atmosphere that predominated in most sessions, and used different strategies, depending in part on their own and their patients' characteristics, besides the nature and severity of the problem. Although the possible courses of action varied considerably, it was observed that each one adopted predominantly a certain kind of attitude.[28]

I noted that the breaking of bad news was handled basically in three ways. The most common consisted of skipping the first stage, not telling the pregnant woman anything and contacting the obstetrician later on, to let s/he deal with the situation. I noted that there were discrepancies between discourse and practice: one day, for example, a doctor in clinic B commented that from then on, she would "say very little during the exams", for she had recently attended "something about ethics … a conference in which a guy said that we shouldn't tell the patients very much…"; Dr. Lucia disagreed immediately, saying: "Ah! That depends on the patient! We see... I tell the patient everything" – which, as I had observed on various occasion, did not exactly correspond to the facts. The exception to this more usual approach was Dr. Henrique:

> I ask him if he tells his patients when he finds pathologies, and he says "yes, *always*". Colleagues adopt various approaches, "some say nothing to their patients and only speak to the obstetrician", but he says that he does both: "Because, anyway, they always ask me if everything is OK, and *I think it's wrong to say yes, when it's not the case*. Of course it's a stressful situation, reactions vary enormously, and it also takes up a lot of time. But I always talk to them and explain the possibilities. And afterwards I phone my colleague". (Clinic A)

Avoiding the first stage can complicate things: depending on the severity of the problem, the doctor cannot postpone giving the information for very long, as his professional competence and credibility are also at stake.

A second strategy is to begin by showing and emphasizing the normal aspects of the fetus, and revealing problems in the course of the ultrasound session that "should be better assessed after a close monitoring of the situation" (female doctor from Clinic C).

The third way of dealing with bad news is to proffer it directly during the exam, which is always a traumatic situation for pregnant women and also anguishing for the professionals

involved. I have rarely seen this kind of situation, but my doctor informants provided me with various accounts. Evidently the severity of the pathology played an important role in determining the degree of difficulty experienced by ultrasonographers in dealing with this kind of communication:

> Dr. Silvio asks me: "Did Carla tell you about the tight spot she found herself in? A pregnant woman came with so many people, that they couldn't all fit in the room. So they decided to do the following: they would take turns going into the room. But the problem was that right at the beginning of the exam she discovered that the fetus was anencephalus! *She became so upset that she ended up interrupting the exam in the middle* and came to me to ask me for advice on what to do". (Clinic C)

The professionals' strategies could be defeated by the pregnant women's visual socialization, when they managed to decode that there was something wrong and queried the doctors directly about it. These circumstances were particularly embarrassing, for it was as if they took the doctor by 'surprise', before he had had the time to calmly decide on a way to deal with the situation. The difficult moments caused by the pregnant woman or others 'seeing' something was the theme of various conversations between doctors, a practice which I interpreted as a way of sharing experiences, possibly trying to reduce levels of tension by providing mutual support:

> Dr. Sandra says that when she sees things that are "very wrong" with the fetus, she "ends up speaking". We talk about a problematic case whose image was still on the screen; she comments that P asked "What's that dark spot?", and adds: "He's a vet, it's terrible… *it's impossible to hide things* [from him]. She [G] just said 'poor little thing… poor little thing'". (Clinic C)

Dr. Silvio told me about a case that had happened to him the day before:

> You should have been here... it was a morphologic [exam], [fetal age] 24 weeks, anencephalic… The couple were both doctors, but they didn't say so at the beginning. It was only when I looked at the encephalon and didn't see anything, that I started saying 'this is the encephalon'… I just didn't know how to say that the fetus wasn't viable, but *I think that the husband saw the image and understood*, and sent the message saying: 'we are doctors'. Then I said: 'I have some very bad news for you'". (Clinic C)

Sensitive or worried pregnant women would stare fixedly at the doctors, trying to detect negative or positive signs about what was happening from the expressions on their faces, and the professionals were aware that they were being scrutinized. In the course of the period of observation, it became clear that there is considerable disagreement among ultrasonographers concerning the question of bad news and how to break it to pregnant women. The Brazilian Ultrasound Society does not issue guidelines regarding this matter, and so the attitudes adopted depend on the personal decisions of professionals, based on their values and beliefs.

Maternal concern about fetal health is not exactly a novelty. The aspect that should be highlighted, and which has been radically reconfigured, derives from the fact that, until the appearance and diffusion of ultrasonography (together with other prenatal diagnosis technologies), doubts about the normality of the fetus were only dispelled at birth.[29] The use of ultrasound exams during pregnancy has made it possible to discover anomalies before

birth, although the possibilities of interference or cure are still rather slim.[30] If, on the one hand, some of the anxieties concerning fetal normality can now be 'dissolved' before birth, on the other, an enormous social pressure has been constructed to scrutinize and monitor each pregnancy as early, as thoroughly and as technologically as possible.

The myth of the 'objectivity of the technical image' and its vicissitudes

There is a relatively unexplored theme in the literature, which specialists in imaging diagnosis are quite familiar with, and professionals are directly confronted with its practical, sometimes dramatic, consequences. All the professionals that were ethnographed were deeply aware of the weight and importance of subjectivity in their daily routines, in both the decoding of images and their direct contact with clients. Moreover, they suffered the effects of the attribution of objectivity to the technical image by clients – lay people – and also by the doctors who requested exams. When this attribution of objectivity came from patients, it was treated with a certain degree of tolerance, but when doctor colleagues were the culprits, it was greeted by my informants with considerable irritation. An angry female doctor recounted a situation that she classified as "surreal": "Yesterday I attended a deaf-mute woman with a request for a transvaginal [ultrasound] which did not contain the suspected diagnosis, and who, on top of all this, came to do the exam unaccompanied. Incredible, don't you think? How was I supposed to know what to look for?" (Clinic A).

Lack of information or, worse, the mythologization of ultrasound's diagnostic possibilities on the part of professionals of other specialties can have serious consequences for pregnant women and their fetuses:

> A pregnant woman in her 13th week of pregnancy recounts that nearly two months ago she had to undergo a scan of her thyroid before an operation, which meant taking radioactive contrast. The surgeon – a well-known and quite proficient doctor – requested a pelvic ultrasound to verify whether or not she was pregnant. As the result of the exam was 'negative' she took the contrast and underwent the operation. Shortly afterwards she found out that she was pregnant; when she did the first exam the embryo was probably too small for the machine's resolution.[31] The situation made her very tense. After the exam, the doctor agreed with me that this woman had been the victim of an error; she should have done a ß-HCG[32] test and not an ultrasound exam. He reveals his preoccupation to me: "Up to now there are no visible malformations, but one can't be sure of anything." Apparently the surgeon believed that an ultrasound exam would be sufficient to discover whether the woman was pregnant. (Clinic A)

Other situations linked to the generalized belief that the image can provide *all* the information needed to elucidate problems border on the comic, as in the following case, that was recounted informally:

> A lady phones her gynecologist's office and explains to the secretary that she has to contact him urgently because she is having a hemorrhage. The doctor isn't there and the secretary tries to help and be pro-active, suggesting: "*You'd better do an ultrasound exam* to see if you've lost the baby". The patient answers: "But I'm 52 years old!"

Taken together, these situations furnish elements showing that the 'objectivity' of the ultrasonographic image is merely a culturally shared myth, a situation in which ultrasonographers constitute an exception, in so far as they are more fully aware of this technology's possibilities and limitations than laypeople and their colleagues.

Appropriations, fusions and reconfigurations

Although the proposal of the research was to make a qualitative analysis, the sessions observed[33] revealed a question of a quantitative order: despite the considerable medicalization of pregnancy, most ultrasound exams revealed 'normal' pregnancies[34], which undoubtedly contributes markedly to the constitution of obstetrical ultrasound as a spectacle, form of leisure and an object of consumption. This transformation in the meaning of the exam plays an important role in the simultaneous reconfiguration of social perceptions of pregnancy and of the fetus, and articulates itself with other issues that transcend the field of obstetrical medicine.

The creativity with which pregnant women and those accompanying them appropriated and interpreted 'objective' medical information produced by the apparatus and interpreted by the professionals constitutes a clear example of how the production of medicalizing truths about pregnancy and the fetus is established and consolidated. Far from being a 'top-down process', or a case of technology taking precedence over the 'natural' way of experiencing pregnancy, what in fact takes place in the ethnographed universe is that, when attributing the most curious and unusual meanings to the hazy images that pass by rapidly on the monitor screen, the actors – the doctors included, in an interesting inflection – subjectivize the grayish blurs and transform them into something quite different from their original purpose. The image of the fetus is taken as equivalent to its presence 'in person', 'live' and in real time, like when the clients and doctors start 'giving him orders': "Don't do <u>that</u>, little baby!" or 'commiserating' with him: "I know, my son, it's so cramped in there, isn't it?" (Clinic A).

Without ceasing to be a diagnostic technology, the production of countless non-medical 'truths' about pregnancy and the fetus also makes fetal ultrasound an object of consumption and a form of entertainment. This shift constitutes what Martin-Barbero, discussing popular culture and the process of communication through the prism of reception, calls 'resistances' (Martin-Barbero, 2003, p.28), emphasizing the active side of the actors, through the use they make of the messages received.

In the case of the transformation of ultrasound into a 'spectacle', especially in the production of non-medical truths, it is clear that this resistance does not solely – or necessarily – denote an opposition to the 'hyper medicalization' of pregnancy, implicit in pre-natal monitoring. First of all it should be emphasized that this medicalization is not an authoritarian process produced 'machiavelically' by doctors, but is much more a complex articulation, in which a 'need' to monitor and supervise the health of the woman and the fetus is constructed. This need is informed, modeled and instigated by the contemporary culture of risk, in which a pregnancy "without surprises" is expected (Arney, 1982, p.175). In addition, it is important to highlight that all the actors involved are part of a cultural configuration in which visuality and spectacularity are predominant, thus contributing to the creation of a situation in which

the visualization of the image of the fetus is equated by those present with its existence outside the uterus, producing a kind of 'virtual birth' before the baby in fact sees the light of day.

The production of the 'pleasure of seeing' the fetal images is one of the most significant results of all this articulation, which, in turn, levers a situation in which pregnant women actively demand to be submitted to the exam, generating a feedback cycle. Thus a dynamic that is constitutive of the field is constructed: the (in a sense) playful appropriation of the exam, as well as the attribution of unusual meanings based on the fetal images and even on the medical 'truths' themselves, instigate the consumption of ultrasound exams, and consequently reinforce the medicalization that is implicit in the use of ultrasonography during pregnancy.

NOTES

*This article is the expanded version of the paper presented at the Mediated Bodies International Conference, in Maastricht, The Netherlands, September 2006. Parts of it integrate chapter 5 of *Meio quilo de gente:* um estudo antropológico sobre ultra-som obstétrico (Ed. Fiocruz, 2007).

[1] Various anthropological articles on the theme have been published in Europe and North America since the 1980s, such as Petchesky, 1987; Duden, 1993; Mitchell, 1994 and especially Rapp, 1997, among others. The absence of a Brazilian study of the subject led me to carry out an ethnography in Rio de Janeiro.

[2] In each clinic I accompanied mostly a doctor: in A, Dr. Henrique, in B, Dr. Lucia and in C, Dr. Silvio. Between exams, I used to stay in the doctors' room and interact with them, and this experience also provided me with very interesting elements for the research.

[3] By visual socialization, I mean the process – observed throughout the ethnography – involving the construction of a visual culture shared by the actors, around the images produced by the apparatus.

[4] Or cyborg, as some authors prefer (Haraway, 1991; Downey, Dumit, 1997; Dumit, Davis-Floyd, 1998; Dumit, 1997; Downey, 1998, amongst others). The field was very rich in situations of this kind, a discussion that is per se very interesting and complex, but which is beyond the scope of this study.

[5] On medicalization, see Foucault (1998); on the medicalization of pregnancy, see Arney (1982).

[6] Some authors, particularly Steven Johnson (2001), have been discussing the construction of what they call 'interfaces', through which the subjects enter into contact, interact and signify technological elements. Accordingly, the ultrasound image can be seen as the interface through which the actors of the universe observed have been reconfiguring various aspects of the social construction of pregnancy.

[7] It should be pointed out that fetal age, weight and height are estimates based on the computational treatment of measurements of certain anatomical structures (respectively, the cephalic perimeter, the abdominal perimeter and the size of the femur). However, although they were merely approximated figures, they were read by the lay actors as actual concrete measurements.

[8] The images riveted the attention of all those present in the exam room. At the beginning of the fieldwork I often found it extremely difficult to look away from the monitor, and I was forced to discipline my gaze so as not to be 'co-opted' by the native culture, and manage to pay attention to the discourses, interactions and negotiations that took place unceasingly.

[9] And also due to the publication of these images in the media, for the most varied purposes.

[10] A tubal pregnancy: when the fertilized ovum lodges itself in the Fallopian tube, putting the woman at risk, and which is often resolved surgically with the removal of the affected tube.

[11] I use 'visibilization' (in contrast to 'visualization') because, first of all, they are native terms and consist of an emic distinction. Secondly, it should be highlighted that, strictly speaking, ultrasound technology – like all non-invasive medical imaging technologies – 'makes visible' or 'visibilizes' something that cannot be apprehended directly by the eye. I reserved the term 'visualization' for the direct situation that occurred during the exams: for example, everyone 'visualized' the images on the monitor screen.

[12] All the names are fictitious. In the citations the parts emphasized by the actors are underlined. My emphases are in italyc type. I use G to designate the pregnant women and P for their partners. I use

brackets to indicate actions or complement data, and omission points to show where the material has been edited.

[13] Fetal 'viability' is another of the various 'hybrid' situations encountered in the field, for it depends in the first place on the age of the fetus, but also to a considerable extent on the technology available to look after the premature.

[14] Incisura, assessed in the Doppler exam, measures the increase in the resistance to the blood flow in the uterine arteries, and can thus be uni- or bilateral. In the second case, some precautions have to be taken such as the use of aspirin by the pregnant woman and the strict monitoring of maternal and fetal circulatory conditions, and fetal growth, through ultrasound exams.

[15] An exaggerated number of cesarean sections are performed in Brazil, a complex issue that is beyond the scope of this study.

[16] A structure that is formed in the ovary after ovulation.

[17] A 'simpatia' is a magical or divinatory practice that is present in Brazilian popular culture.

[18] The terms 'boy' and 'girl' are put in inverted commas to emphasize that they are in fact fetuses that are considered by the actors as already-born children. That is, they are boys and girls solely from an emic point of view. The same can be said about the use of the words 'mum' and 'dad', which anticipate mother- and fatherhood as if the baby had already been born.

[19] I discuss the question of the determination of fetal sex and subjectivization linked to the construction of gender, at greater length, in other texts (Chazan, 2003; 2005, p.272-302).

[20] Measurement of a fold of skin from the nape of the fetus' neck.

[21] The alteration of these two parameters provides a probabilistic indication, which when combined with the risk posed by maternal age produces an index which represents the rate of risk of that fetus having an anomaly. This rate, compared to the rate of risk of abortion caused by complications arising from the amniocentesis exam, is presented to the pregnant women so that they can decide whether or not to be submitted to this procedure – which is more invasive, and therefore risky, but offers a more precise assessment of chromosome anomalies.

[22] On this theme, see Duden (1993) and Rapp (1997; 1998; 1999).

[23] The construction of gender before birth is a broad and complex theme, and is beyond the scope of the present study. On this subject, see Chazan (2003; 2005, p.272-302).

[24] Another hybrid situation, for after the detection of the anomaly using high-tech equipment, G appears to have resorted to an alternative therapy to 'solve the problem' in her fetus' lung.

[25] See Petchesky (1987), Duden (1993), Mitchell (1994), Rapp (1997), Taylor (1998).

[26] For example on the part of doctors in public hospitals who refuse to perform, alleging 'moral reasons', even when authorized by the courts.

[27] What happens in practice is that women still go ahead with abortions, in conditions of hygiene that vary according to their socio-economic status, with the consequences that can be imagined. As it is an illegal practice, there are various methodological difficulties involved in epidemiological research into abortion in Brazil. Some studies estimate a national average of one abortion per 3.7 births (Ramírez-Gálvez, 1999, p.19). For a discussion and review of the theme, see Ramírez-Gálvez (1999).

[28] A doctor told me in a personal communication that there are various discussions among ultrasound professionals about what is the most appropriate attitude in this field. There is only a relative consensus that ultrasonographers should not indicate complementary exams to dispel certain doubts about diagnoses, so as not to run the risk of perpetrating ethical offences in relation to the obstetricians responsible.

[29] On other diagnostic technologies and their cultural consequences, see Rapp (1997; 1998; 1999).

[30] Moreover, given that abortion is illegal in Brazil, the scope for action is even narrower and the situation becomes considerably more complicated.

[31] Contemporary equipment is only able to detect objects measuring more than 5mm.

[32] Chorionic gonadotropin, for the early diagnosis of pregnancy, measured by immunofluorescence in the woman's blood.

[33] A total of nearly 200 exams, performed in the three clinics.

[34] No more than ten exams revealed serious pathologies or fetal death.

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