



Facts and doubts about the beginning of human life

Human embryo: a critical approach to bioethical reason

A catholic perspective

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FERTILIZATION IN HUMANS AND THE ONTOLOGICAL AND ETHICAL STATUTE OF THE HUMAN EMBRYO

I shall try to make explicit the catholic position on the topic heading this part of my presentation going through three statements dealing with the most important problems posed in moral philosophy and theology, the discoveries and advances made in recent decades, in particular, those referring to the processes of cell growth, differentiation, development and death, so that the question arises of whether the *principle of the inviolability of human life requires greater precision*, both at the beginning and at the end of human biological life.

Statement One:

Calling realities in earlier stages of a human embryo such as zygote, morula or blastocyst is debatable. Let us accept that, for the purposes of explaining to the general public, it is appropriate to unify terminology, without stooping to impractical hair-splitting. By this I do not mean to start – an otherwise sterile – argument on the possible evaluations of speaking of preimplantation embryo or pre-embryo.

We can say that the human embryo is the structure that develops from a human zygote, through a series of divisions, differentiated into tissues and organs. The human zygote is the founding cell of an organism, resulting from the meeting of two specialized cells called gametes, one from the mother (egg) and one from the father (sperm). Each of these has been duly prepared over a long process (meiosis), which leads, as the most relevant and visibly noticeable fact of the last phase of ripening, to the systematic reduction of the number of chromosomes from 46 to 23. Curiously, these gametes cannot survive separately for very long, only a few hours, but following syngamy, their fusion gives rise to a new human life different from that of its parents, that lasts for years. Fertilization takes place in the upper third of the Fallopiian tube and first affects the cytoplasm of the gamete cells and then their nuclei, thus marking the two most relevant aspects of gamete fusion.

Until relatively recently, the following statement was, for most people, fairly obvious:

From the time that the ovum is fertilized, a new life is begun which is neither that of the father nor of the mother; it is rather the life of a new human being with his own growth. It would never be

made human if it were not human already. To this perpetual evidence... modern genetic science brings valuable confirmation. It has demonstrated that, from the first instant, the program is fixed as to what this living being will be: a man, this individual-man with his characteristic aspects already well determined. Right from fertilization is begun the adventure of human life, and each of its great capacities requires time... to find its place and to be in a position to act. (9)

This formulation appears questionable today, at least in the form. Later, we shall see whether it also affects the content.

From the point of view of human development, modern genetics states that penetration of the egg by the sperm does not take place in a moment, but that it is a process during which the sperm becomes prepared to fertilize the egg. It was believed formerly that shortly after fertilization, what we call syngamy took place, (fusion of the male and female pronuclei, and with it the appearance of a new genome). Today, we can state that, strictly speaking, there is no syngamy or fusion in humans.

Fertilization in humans: cell cycle (2)

Concomitantly to fusion of the spermatozoon with the oocyte, the process of **meiosis** is reactivated (anaphase II and telophase II) extruding the 2nd polar body and thus re-establishing the diploid character (2). The chromatids that remain at the inner pole of the oocyte, fuse with each other and begin a migration towards the center of the oocyte at the same time as they decondense and begin to be enveloped in small fragments of membrane, finally constituting the female pronucleus.

* Meiosis: a process of cell division of germ cells to form gametes (oocytes and spermatozoa). It is a reductional division. Two successive divisions take place, but only one duplication of the chromosomes. From a diploid cell, theoretically 4 different haploid cells are formed. In the case of spermatogenesis, 4 spermatozoa are obtained from one spermatogonium, while in oogenesis, a single viable gamete (oocyte) is obtained from one oogonium.

In the meantime, the male pronucleus begins to form near the fertilisation cone. This process is far more complex than the formation of the female pronucleus and is regulated by factors of the oocyte itself. If penetration takes place when the female gamete is not sufficiently mature or in adequate culture conditions, the regulatory factors may be missing or have a defective constitution that leads to the non-formation of the male pronucleus.

Following formation, the female and male pronuclei are morphologically indistinguishable, except for the greater proximity of the female pronucleus to the 2nd polar body and the male's proximity to the remains of the sperm tail structure (visible only through the study of ultrafine sections under a transmission electron microscope). The next step

is migration of the pronuclei to the centre of the oocyte.

From a morphological point of view, fertilisation is not complete until the first embryonic division has taken place, since in humans, as in other mammal species, the two pronuclei lie very close to each other but fusion does not occur. With the start of the first embryonic divisions (**mitosis**) the membranes of the pronuclei disappear and the two chromosomal complements locate on the same metaphasic plate. It is considered, then, that in humans there is no **syngamy**, understanding syngamy to be the fusion of the male and female pronuclei, there is only **metaphasic synchronization**.

The **cell cycle** is defined as a series of distinct phases: G1, S, G2, and Mitosis (G=gap, S=synthesis). The length of the cell cycle in human zygotes is 20–33 hours post-insemination, according to the authors.

G1 – Completion of meiosis: extrusion of the 2nd polar body and start of pronuclei formation. Average duration: 8 hours post-insemination (3–10 hpi).

S – Replication of DNA. Phase of great nuclear activity, in which the zygote is more likely to be damaged. Average duration: 8–14 hours post-insemination up to 10–18 hpi.

G2 – Latent phase. Average duration: 4–6 hours.

Mitosis: Non-reductional division that ensures the diploid nature of the two daughter cells. It begins with the dissolution of the pronuclei and condensation of the DNA in the form of chromosomes. Next these duplicate guaranteeing that each daughter cell has a copy of each chromosome and therefore that they are all, in principle, chromosomally equal. Average duration: 3 hours (22–31 hpi).

Cell division into 2 cells occurs at 25–33 hpi.

Gametic embryos and somatic embryos

We will call an oocyte (gamete from the mother) fertilised by a spermatozoon (a male gamete) a gametic embryo, to use the current terminology.

Today, however, we can have *non-gametic human embryos*, obtained through the »in vitro« transfer of the diploid nucleus of a differentiated (adult) cell to the cytoplasm of an enucleated oocyte. Using the current terminology we'll call it a »somatic embryo«.

The question until recently received a clear answer: human life starts at the moment of fertilization. Today, when on the one hand there is no such moment, and, on the other, we have the option of obtaining somatic embryos, we find ourselves perplexed by the question of whether we really know what we are talking about when we speak of a *human embryo*. Can we define first, with sufficient clarity, when we have a human embryo? And, if we agree on an anatomical-physiological criterion of

considering an embryo human from the first cell division up to 14 days after the start of the fertilization process (pre-embryonic stage), and from day 15 to the end of the 8th week after fertilization (embryonic stage), is it our moral duty to ensure its »complete« protectability? What are we really saying when we say the human embryo must be respected as a person from the first moment of its existence?

I think it would be worthwhile focusing on the scientific and ethical criteria put forward concerning human embryos, separating them from the arguments on procured abortion and even more from the demographic policies that request or demand it as a form of birth control. We'll look at the legal criteria last, especially important for their pedagogical effect.

I also think it would be interesting, especially considering the second part of the presentation, if, when discussing the use of human embryos, we mention those generated by *in vitro* fertilization. Obviously, we will also consider embryos generated naturally.

One of the relevant mechanisms acting in the process of fertilization, in which the male and female gametes take part, is the so-called »genomic imprint«, the parental imprint, of paramount importance in correct gene expression throughout development. Genomic imprint is the different expression of certain genes according to the sex of the parent from which they are inherited. Half of the genetic material of each individual comes from the father and the other half from the mother. For the correct development of the embryo DNA from both parents must be present: bi-parental contribution. The genomic imprint or marker (genetic imprint) does not mean changes in the sequence of DNA nucleotides of these genes, but that it is produced technically by the addition of methyl groups (CH₃). That is, the imprint consists of a modification of the chromatin structure or the DNA that is able to influence gene expression. It is not a mutation, but a reversible and completely normal modification, called epigenetics, which controls the execution of the development programme. DNA methylation constitutes one of the principal epigenetic mechanisms. Generally, this modification is associated with a deactivation of the affected gene. The methyl groups may create a local chromatin configuration that makes genes inaccessible and therefore transcriptionally inactive. The more adult a cell, the more it specialises and the fewer genes it uses. Therefore, its DNA is usually very methylated. Contrariwise, embryo cells, which can turn into all possible cell types, have undergone far less methylation, and have been reinitialized. The results show that a normal level of DNA methylation is required to control the differential expression of the maternal and paternal alleles of the »imprinted« genes. It has been shown that both the male genome and the female genome, are essential for normal embryonic development in mammals, due to the fact that some genes are expressed only when they come from the father and others only when they come from the mother.

In cloning by nuclear transfer there is no differential gene imprinting, which guarantees correct gene expression and normal development of the embryo. Genetic reprogramming, by methylation, occurs abnormally in most cloned beings, which probably contributes to the lack of efficiency of cloning. Malformations or defects in clones suggest a deregulation of gene expression, a deregulation that may be effectively associated with a problem of methylation. (Prof. José Antonio Abrisqueta).

The fact is that today, with the advances being made, we are left perplexed by the question of whether we really know what we are talking about when we speak of the human embryo.

Statement Two:

Embryonic core cells, or stem cells, have greater potential for research than differentiated (adult) cells. Based on the same scientific data, the ethical standpoints are irreconcilable and often mutually exclusive, even condemning with the full weight of authority of official documents of the Catholic Church, such as the Encyclical Evangelium Vitae #61.

Before continuing this exposition, I should like to digress briefly to explain what core or stem cells are; their plasticity and possible culture sources in the laboratory. I prefer to use the term core cells to stem cells.

Core cells have the ability to divide indefinitely when grown in culture and develop into specialized cell types. In human development three main types of core cell are produced:

- 1) Totipotent
- 2) Pluripotent
- 3) Multipotent

The first type are the cells produced following fertilization of the oocyte. Each of the cells retains the ability to give rise to a complete human being. This property is lost in the 8-cell stage or in the subsequent division (16 cells). Later on the core cells still retain the ability to develop into any type of human cell; they are embryonic pluripotent core cells. Finally, in the adult organism, these core cells can only produce differentiated cells of a given type: nerve, blood, bone, etc.

Wonder of wonders: In 1999, in an article published in *Science*, Vescovi and his collaborators informed that they had successfully converted pluripotent (stem) cells from an adult mouse brain into haematopoietic cells: blood-forming stem cells. The reverse operation would also be possible, since what he had achieved was to prove the **plasticity of adult stem cells**. This meant their ability to despecialise and become another types of pluripotent cells. This would mean there would be no need to use human embryos for research, thus overcoming the great ethical and legal problem of its condition as a person (real or potential) and its exploitation.

Sources of stem cells for culture in laboratories:

- »Leftover« embryos from In Vitro Fertilization (IVF) or created for research.

- Germ cells from aborted fetuses.
- Embryos cloned by transfer of the nucleus of an adult cell or enucleated oocyte.
- Reprogrammed adult cells.
- Bone marrow cells.
- Umbilical cord cells.

It is easy to understand that the first two sources of stem cells for culture are unacceptable for those who, in accordance with the Magisterium of the Catholic Church, consider that human embryos must be respected as people and that there is no substantial difference between the implanted embryo and that which for practical reasons is called »leftover«. Obtaining germ cells from fetuses aborted specially for this purpose is also unacceptable. Obtaining the cells from miscarried embryos or fetuses would be a different matter. This would not pose an ethical problem; instead we have the problem of there being too few of them for research and also the fact that tissues are usually deteriorated.

Obtaining embryos cloned by transfer of the nucleus of an adult cell or an enucleated oocyte deserves serious consideration, and also to what extent we can speak in these cases of a human embryo when, as much for the procedure as for the fact that they are not obtained for reproductive purposes, leaves considerable room for questions which are not answered satisfactorily.

I think that often the scientific arguments are largely unknown for those who hold or defend the most extreme views (complete rejection or unconditional acceptance) and which in any case, outweigh prejudices – which are those value judgements that in the course of life have moulded our cosmivision – greatly conditioned by our education and the critical analysis we have already made.

We must try, I believe, in this encounter to help each other shed light on our concepts, as points of reflection, with no one, at least not me, wishing to *convince the other* and far less believing that this symposium puts an end to the dialogue.

Statement Three

Even when members of the Catholic Church are apparently unanimous regarding the ethical statute of the human embryo, it must be stated that they are unanimous in appearance only, coinciding with the religious aspects, although not necessarily in their reasoning or even in their interpretation of the scientific facts.

I therefore consider that the classic arguments should be presented from the Church's standpoint and that the counterarguments do not necessarily exclude ecclesiastical communion.

Classic arguments from the Church's standpoint:

1) Scientific discourse; 2) Ethical discourse; 3) Theological discourse.

1) *Scientific discourse:* From the fertilization of the egg by the sperm the program of what the new being will be is already fixed. A human individual, with

his features already determined. The zygote resulting from fertilization contains the biological identity of a new human being.

2) *Ethical discourse:* The moral condition of the human embryo does not depend on an arbitrary moment, and must be respected as a person from the first moment of its existence.

3) *Theological discourse:* The inviolability of the right to life of an innocent human being »from the moment of conception until death« is a sign and a requirement of the same inviolability of the individual, to whom the Creator has given the gift of life.

Counterarguments:

1) *Scientific discourse:* During embryogenesis there is a period of biological constitution, in the course of which new qualities emerge, which are not, either actually or potentially, in the first stages of embryonic development.

2) *Ethical discourse:* Until the human embryo has implanted, the constituent process is not complete. In the interaction between the embryo and the mother, at the site of implantation, the configuration of that which determines what the embryo is going to be is completed. Certainly there is no precise moment, rather a process that requires time. In this time the »human dignity« value according to what the embryo may turn out to be, is considerable compared to other values (at least in *in vitro* embryos).

3) *Theological discourse:* With all due respect to the Magisterium of the Church, there are a number of biological data that enable us to form the opinion that there are no objections to considering that the concept of human dignity does not apply to the human embryo *in vitro*, or to the naturally conceived embryo until implantation, or to the frozen embryo.

I think it is a good idea, before taking a standpoint, to reflect on our understanding of the rational soul, and on the authority of the Magisterium of the Catholic Church.

Bearing in mind all the technological change or progress in nature that we have analyzed, it is logical that people react strongly when the most private core of their mentality comes under attack. Touching a person's mentality is tantamount to questioning the picture he has formed of the world and of himself. The Magisterium's argument that supports the prescription that: »*A human being must be respected -as a person- from the first instant of his existence*«, is the presence of the human soul, or the being *capax animae*. In other words, the fruit of human generation from the first moment of its existence, that is, from the constitution of the zygote, demands unconditional respect that is morally due to a human being, in his corporate and spiritual entirety.

Regarding the moment of animation according to the doctrine of the Church:

The Catholic Church has never commented on the moment of animation. This matter was dealt with explicitly in the Declaration on Procured Abortion, by the Sacred Congregation for the Doctrine of the Faith, in November 1974, note 19, which says:

It is a philosophical problem from which our moral affirmation remains independent for two reasons: (1) supposing a belated animation, there is still nothing less than a human life, preparing for and calling for a soul in which the nature received from parents is completed, (2) on the other hand, it suffices that this presence of the soul be probable (and one can never prove the contrary) in order that the taking of life involve accepting the risk of killing a man, not only waiting for, but already in possession of his soul.

The *Donum Vitae* Instruction on Respect for Human life in its Origin and the Dignity of Procreation (D.V. I.1.1987) The Encyclical Letter »*Evangelium Vitae*« (EV, 1995) with higher authority reaffirms that:

The human being must be respected as a person – from the very first instant of his existence... Certainly no experimental datum can be in itself sufficient to bring us to the recognition of a spiritual soul; nevertheless, the conclusions of science regarding the human embryo provide a valuable indication for discerning by the use of reason a personal presence at the moment of this first appearance of a human life: how could a human individual not be a human person? The Magisterium has not expressly committed itself to an affirmation of a philosophical nature, but it constantly reaffirms the moral condemnation of any kind of procured abortion. This teaching has not been changed and is unchangeable (EV,60).

Biology cannot indicate the precise moment as of which the individual should be considered a person, nor can philosophy recognize the moment in which the rational soul, if we accept the term, is created in the body. It is a philosophical problem, a direct solution to which we cannot find even in the Scriptures, or in the writings of Tradition. The Church has never attempted to solve such a problem even when it has taken as the assumption of its legislation the theory of delayed ensoulment, or when, due to new doctrinal guidelines and doubts arousing in this regard, as it has not taken into account the traditional distinction between animate and inanimate fetus.

To the question of whether an inviolable human life exists from the moment the germ cells fuse, we find two clearly identifiable answers amongst Catholic moralists. A majority considers that fertilization is the decisive moment in which a new human being is formed, with the fundamental right to life. A minority, including moralists of authority within the Church, considers that full humanization of the embryo should be postponed, at least, until the end of implantation, (when the embryo has lost the potential for giving rise to more than one individual) or until the first outlines of the brain or nervous system begin to develop.

The teaching Magisterium of the Catholic Church

The word of God, recorded in writing with the inspiration of the Holy Spirit (Holy Scripture) and Tradition, a complete transmission of the word of God to the successors of the Apostles, has been entrusted to the Church, whose mission is to interpret authoritatively the word of God. This word, written and passed on, has been entrusted exclusively to the living Magisterium of the Church, whose authority is exercised in the name of Jesus Christ, that is, to the bishops in communion with the successor of Peter, the Bishop of Rome.

The Magisterium of the Church exercises fully the authority received from Christ when it defines the dogmas, that is when it proposes – in a way that obliges the Christian people – an irrevocable adhesion of faith, truths contained in the divine revelation, or truths that bear the necessary relation to this Revelation. Amongst the truths of the Catholic doctrine there is a hierarchy due to its different link with the foundations of the Christian faith.

Bearing in mind what we have said, it must be stated that along with the commandment to love God above all others and thy neighbour as thyself (neighbour meaning anyone in need), the Magisterium of the Church may make doctrinal declarations on many aspects and customs to safeguard the substance of the faith itself. The Magisterium is responsible for rendering a service to Christian life, of respect for human dignity and the sanctity of life as a gift from God. There is no doubt that the so-called Ordinary Magisterium of the Church is fallible. It can, and does, make mistakes, especially in all those cases in which it has no special authority, such as interpretations of the scientific truths or the interpretation of the so-called natural law.

Some theologians consider that the interpretation of the natural law given by the Magisterium of the Church is something that is included in the deposit of the faith, and which the Church must conserve, defend and pass on, and for this reason the Church has the strength and authority to impose any doctrine of natural law as an obligation. We disagree with this interpretation, insofar as the question of how the Church knows that something is law or natural law or why it knows better than others would go unanswered, if by hypothesis it is a matter of reasonable ethical content. That is to say, either they are not part of the deposit of the Revelation, or if they are, it is not because they are in themselves inaccessible to the understanding of human reason. And secondly, by what authority does it proclaim this ethical content? This has led to some theologians, whom we agree with, to take standpoints like that of Franz Böckle and other eminent theologians:

Responsible adult behaviour should be guided knowing what one does and the reasons one acts, (without denying that one can trust the other; if one is convinced that this other is governed by forceful, valid reason). Consequently the Church, before the men of our soci-

ety, whether they are of the Church or not, cannot refer to a reasonable ethical demand and at the same time demand that they follow it, without being able to show reasonable and rational grounds for it to be followed. If the Magisterium and theology believe that, they have greater knowledge of a moral question from other sources, then they should declare, both to the members of the Church and to those who are not members, where they got this knowledge from and what it is. Otherwise the arguments are worth only as much as they can prove... We can accept that there are mysteries of faith, but there can be no mysteries of moral.

(Böckle, F., *Fundamental moral*, Munich, Kösel Verlag, 1977; [English title: *Fundamental Moral Theology*]).

Ontological statute of the anencephalic fetus

We shall see now another problem in which the existence of the person, that is, the existence of an individual with rational intelligence and, for the believer, the image of God, theoretically able to become a moral subject, is under questioning. The existence of anencephalic fetuses forces one to question whether it is not necessary that there exist – or the potentiality that it may exist – a cerebral structure in the biologically human being.

Let us consider the characteristics of a human being with anencephaly. In the first place, it is convenient to state clearly that an anencephalic fetus is not a fetus endowed with trunk and extremities that has been born headless. In the second place, we shall define anencephaly *strictu sensu* in order to distinguish it from other similar defects in the closing of the neural tube.

Anencephaly in a strict sense is characterized by 1) absence of a major part of the cranium; 2) absence of skin that would have to cover the cranium, in the zone of the anterior brain; 3) absence of cerebral hemispheres; 4) exposition to the exterior of hemorrhagic and fibrotic nervous tissue.

Cefalo and Engelhardt, who have studied the problem with special interest, explain it thus:

»Anencephaly is characterized by an absence of the anterior brain formed by the frontal, occipital and parietal lobes, the cranium and the skin covering these areas. This defect is considered the result of the neural tube not being closed. Even though the possibility does exist that this condition may be caused by the secondary rupture of the said tube after it has closed (Games, 1973), experimental studies with animals very much agree with the hypothesis of the lack of primary closing (Kallen, 1973; Lesmire, 1988; Smith, 1982). The human neural folds, out of which the brain is formed, complete their closing around the 24 day after the conception of the human being, when the embryo is no larger than 4.5 mm (Muller, 1986). It is considered that the malformation is produced before this time. After 36 days of fertilization, the neural folds develop the structure of the anterior brain, mesencephalon, cerebellum, and medulla oblongata. The cerebral hemispheres do not develop until the 100 day after

fertilization. Animal models have shown that the damage that follows after the neural tube does not close can take place much earlier than the closing, that is 24 days after fertilization (Peters, 1979). Anencephaly includes, overall, the lack of development of the two cerebral hemispheres and the hypothalamus, the incomplete development of the pituitary gland and of the cranium, with the facial structures becoming altered by a grotesque appearance, and abnormalities in the cervical vertebrae. The eyes may look at long range normal, but the optical nerve, if it does exist, does not extend itself to the brain. There exists, however, the function of encephalic trunk that can stimulate various reflexes, such as the functions of the heart and lungs for a short period of time. Some anencephalic beings show pressuring, sucking and vestibular functions, and respond to painful stimuli (Swaiman, 1982). However this latter response can be better understood as a painful reflex from the encephalic trunk. To have chosen this term depends on a distinction among several factors:

- Mere reflex responses to painful stimuli, analogous to those on the knee (patella), and that do not require more than an intact reflex arc, without any sensible appreciation of stimulus.
- The pure sensation of pain, which demands more than the cerebral trunk (the thalamus, for example); and
- Suffering, which requires the neural substrata necessary to perceive as a threat the sensation of pain (for example, the neocortex of the frontal lobes).

Since the complete ablation of the crucial areas in the thalamus makes it impossible to sense pain, and anencephalic beings do not have thalamus, they lack the neural substrata that is needed to experience pain, in the same manner that the lack the neural substrata essential for thinking, communication and general sensitivity (Cassey, 1980, p. 186; Adams, 1980, p. 116).«

The anencephalic fetus's in vitro diagnosis can be done with certainty. The frequency of appearance of this congenital defect is for 0.3–7 per 1,000 of all pregnancies. Most of anencephalic fetuses that are born alive die within the first 24 hours, some survive several days and exceptionally a month or so. Even though it does not have any special importance for our analysis, we shall mention that between the 13 and the 33 per cent of anencephalic fetuses show other organic defects (heart, kidneys, etc.).

I am going to consider it a supposition that the hypothetical creation of human anencephalic fetuses by means of teratogenic substances and with the purpose of having access to human fetal organs is a tremendous aberration. I shall limit myself to some considerations that make reference to the finding by means of prenatal diagnosis of a fetus that will certainly be anencephalic. I also wish to underline that I limit myself to this situation and no to other defects that could be considered similar.

Throughout the whole personal process shared with other professionals, we have reached the following conclusions which I submit for your consideration and anal-

ysis, without our having as a purpose to set doctrine, much less to present them as an expression of official teachings:

- We do not pretend to state here that we know, nor do we wish to establish all the essential conditions for the existence of a person, and that everyone be in agreement. This is an ethical and legal issue, of outmost importance, still open to discussion. But the benefit brought about by moral protection granted to those who are believed to be persons demands a minimum biological substrate as a basis for future development.
- In absence of the minimum essential biologically structural conditions for the possibility of any capacity for future relationships or self-consciousness, there is either no human person or no longer a human person.
- Therefore, those who advise or choose the interruption of a pregnancy in which anencephaly has been clearly established, cannot be said to be acting in a way that is morally wrong, unless on other grounds.
- In addition, the use of anencephalic beings after delivery as the source of organs or tissue retrieval, is not a violation of personal dignity. Therefore, if such retrieval is considered morally wrong, it must be on other grounds.

Various committees on ethical assistance have accepted these proposals and have established the consequent practical guidelines which we could outline thus:

1. When facing the diagnosis of an anencephalic fetus, it is convenient to exhaust all the diagnostic means available to make sure that the diagnosis is correct and there is no reasonable doubt left.
2. Maximum care will be taken when informing the patient. The physician ought to consider whether it is convenient to tell first to the husband of the mother so that he is the one telling the woman. It will never be done in a hurried manner, and psychological support will be offered to the couple.
3. The medical team will not take the initiative of advising the interruption of the gestation, even though they must be receptive to the request from the patient or, on her behalf, from a close relative. If this request is made, the team will explain that the hospital considers with strict foundations that this interruption of the gestation under no circumstances can be considered an abortion in the moral sense of the term.
4. No physician or nurse, nor any other personnel member can be forced to participate in the interruption of the gestation, should they have any objection of conscience for doing so.
5. This interruption of gestation, in case it is decided to carry it out, can never be considered as an emergency measure, and whenever it is done, it must have the approval of the Service Head or Director, who may request the necessary counseling. A mat-

ter that worries a lot is the use of anencephalic fetuses as sources for transplant organs. Both in the case of a pregnant woman who wishes to end her pregnancy of an anencephalic fetus, under the condition that its organs be used to save the lives of other children; as well as in the case when an anencephalic fetus is born, and its parents request information for the purpose of donating its organs, there come up serious doubts which question the certainties of those who would fully accept the interruption of gestation: Can we keep these fetuses alive with maximum vital support aids to extract from them their organs when it is technically feasible? Are we necessarily to wait for death due to spontaneous cardiorespiratory failure? The negative answer to the first question is not infrequent as is a positive answer to the second, even from those who would accept the interruption of the gestation. It seems that some dignity is attributed to the extrauterine fetus that is not acknowledged for the intrauterine one.

TWO IMPORTANT REMARKS

- We must show respect for human life and the dignity of any human being, whatever anomalies it may suffer, handicaps limit his autonomy or the social marginalization to which it is reduced.
- In an individual who is malformed, and therefore sick, disabled or mentally handicapped, we must see a member of the human community, someone who suffers and who, more than any other, requires our support and respect to help him believe in his value as a person.

ANNEX I

WHAT IS THE BORJA INSTITUTE OF BIOETHICS AND WHAT DOES IT DO?

The Borja Institute of Bioethics (IBB) was created in 1976 by Dr. Francesc Abel, SJ, in Sant Cugat del Vallès (Barcelona), constituted as a Private non-profit-making Foundation in 1984, and entered on the Register of Foundations of the Government of Catalonia. The Institute belongs to Ramon Llull University (URL) since the year 2000.

The IBB governing and management bodies are:

The Board of Trustees, made up of thirteen professors and professionals in the health sciences, philosophy and theology, law, economics and other social sciences. On the board there are two representatives of the Society of Jesus (S.I.) and two of the Hospitalier Order of Saint John of God (O.H.).

The Executive Committee, has four members appointed by the Board.

The IBB Director, Mrs. Núria Terribas, a lawyer specialised in Bioethics and Biolaw, is responsible for man-

agement and coordination of the teaching, scientific, economic and administrative areas.

The Institute's activities can be summarised in three large fields:

- **Research:** to study and analyze new scientific advances in health sciences, and its social, ethical and legal impact, both at the national and international level.
- **Teaching and publications:** to provide a post-graduate training in bioethics for health professionals and professionals from other disciplines, and to publish scholarly research articles in bioethics as well as selected articles in bioethics to be made available to non specialists through the quarterly journal »*Bioètica & Debat*«, published by the Institute.
- **Adviser in bioethics and biolaw as a member of Clinical Ethics Committees as well as member of Clinical Trials Ethics Committees, in public and private Hospitals.** Besides, IBB is adviser of the government of Catalonia (Bioethics Committee of Catalonia).

OBJECTIVES AND METHODS

- **To analyse** ethical, philosophical, theological and legal problems raised by biomedical progress and their repercussions on society's system of values.
- **To foster** interdisciplinary between scientists and humanists, as a working method, conducive to integrate scientific knowledge and ethical sensitivity. With the aim of debating these questions, the Institute organises and takes part in national and international conferences and lectures.
- **To train** in bioethics health professionals and professionals from other disciplines in order to satisfy the academic requirements for their degree. As a university institution the Borja Institute of Bioethics offers a Master's Degree on Bioethics (400 hours) and Foundation Courses in Bioethics (65 hours).
- **To promote** research by participating in national and foreign projects and the awarding of scholarships each year for research work or doctoral dissertations on bioethics. In the international arena the Institute is a founder member of the European Association of Centres of Medical Ethics (EACME).

To express opinions, statements and criteria regarding the questions raised in the public debate. To this end it makes available to the general public its quarterly journal *Bioètica & Debat* (Bioethics and Debate) and its scientific publications.

WHO WORKS AT THE INSTITUTE?

Scientific collaborators from various fields (philosophy, medicine, biology, law and nursing) working as full or part-time researchers, and other volunteers taking part in research projects and teaching activities. Furthermore, the Institute has a well qualified administrative and library staff.

BIOETHICS LIBRARY AND DOCUMENTATION CENTRE

The library and documentation centre is, with its more than twelve thousand volumes on bioethics, a basic instrument for the Institute's research and teaching tasks. The periodicals section of the library receives more than two hundred journals from all Western countries and has an important collection of bioethics articles selected from the world's principal journals. Access service for on-line queries of its document collection is available via the Institute website (www.ibbioetica.org) as well as its documentation service. The Institute's Library e-mail address is: biblioteca-bioetica@ibb.hsjdbcn.org

FUNDING

The funding capital largely consists of a specialized bibliographic resources (library and journals) and of a modest capital which yields a return. Ordinary running costs are covered by the income from teaching and other IBB activities, and above all donations from:

- Collaboration Agreement with the Government of Catalonia.
- Private foundations in Catalonia of different types.
- From religious orders (O.H. and S.I.) dedicated to health or teaching.
- Free contributions in kind from volunteer professionals.

The management results and institutional assets are published in an annual report.

INSTITUTE LOCATION

Since 2001, the Institute is located in **Edifici Docent Sant Joan de Déu** (c/ Santa Rosa 39-57, Esplugues de Llobregat, Barcelona), attached to »Sant Joan de Déu Hospital«, a women and children university hospital.

Such a location in the hospital area enables us to keep a close relationship with the Departments of Paediatrics and Gynaecology and Nursing School (University of Barcelona). The map shows the location of the building, the Institute offices, and accesses from the city of Barcelona and from neighbouring areas

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