

Human Development as Revealed in the Glorious Qur'an and Hadith

M. Shoukfeh, MD, FRCOG

Professor of Obstetrics and Gynecology and
Chairman of the Department of Islamic Medicine (Retired)
Dubai Medical College, United Arab Emirates

Abstract:

Human development has been referred to in the Qur'an and Hadith. These references describe three different stages, the *nutfa*, the *'alaqa* and the *mudgha*, in a manner which corresponds well with modern science's description of embryologic development. This is another miracle of the Qur'an. The calculation of days of the three stages of development mentioned in the Qur'an and Hadith reflect the period from the first day of last menstrual period rather than from the day of fertilization.

Key Words: Qur'an, Hadith, *Nutfa*, *'Alaqa*, *Mudgha*, Creation, Embryology, Human Development

Human development is described in the Glorious Qur'an and Hadith (Prophet Muhammad's ﷺ sayings) in a way that was never known by scientists until recently. Some of the Qur'anic verses are still beyond explanation, awaiting further scientific advancements.

Many scholars tried to achieve understanding of the scriptures (Qur'an and Hadith) on the subject in the light of modern science, but most published material was inaccurate due to the fact that most authors did not follow the proper way of research in the Glorious Qur'an.¹⁻⁵

Materials and Methods

To achieve proper understanding of the terminology used in the scriptures, each term was reviewed and studied regarding its possible meaning or meanings, wherever it appeared in the Qur'an, the hadith literature, comments of the Prophet's companions or early Arabic literature. Ancient and recent Islamic literature

was also reviewed, excluding imaginative and unproven ideas.

Data collected in this way were analyzed in the light of modern scientific achievements and understood accordingly, thus highlighting the miracles of the Glorious Qur'an in this field of science.

Stages of Early Embryonic Development

Allah ﷻ creates man into three successive stages called *al-nutfa*, *al-'alaqa* and *al-mudgha*. Allah ﷻ says in the Glorious Qur'an:

يَا أَيُّهَا النَّاسُ إِن كُنْتُمْ فِي رَيْبٍ مِّنَ الْبَعْثِ فَإِنَّا
خَلَقْنَاكُمْ مِّن تُرَابٍ ثُمَّ مِّن نُّطْفَةٍ ثُمَّ مِّن عِلْقَةٍ ثُمَّ مِّن
مُّضَعَةٍ مُّخَلَّقَةٍ وَغَيْرِ مُّخَلَّقَةٍ

O Mankind, if ye have a doubt about the resurrection, (consider) that we created you out of dust, then out of *nutfa*, then out of *'alaqa*, then out of *mudgha* formed and unformed.⁶

This is also mentioned in a hadith related on the authority of Ibn Mas'ūd:

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إن أحدكم يجمع خلقه في بطن أمه أربعين يوماً. ثم يكون في ذلك علقة مثل ذلك. ثم يكون في ذلك مضغة مثل ذلك. ثم يرسل الملك فينفخ فيه الروح.

Verily, the creation of each one of you is brought together in his mother's belly for 40 days in the form of a *nutfa*. Then he becomes *'alaqa* for a like period, then he becomes *mudgha* for a like period, then there is sent to him the angel who blows the spirit into him ...⁷

Terminology

A. The *nutfa* is the first stage of development starting with the formation of primordial germ cells of both partners and continuing up to Day 40 menstrual age of the conceptus (Figure 1).⁷ The term is comprehensive, including:

1. Male and female gametes

A verse of the Qur'an says:

وَأَنَّهُ خَلَقَ الذَّكَرَ وَالْأُنثَىٰ مِن نُّطْفَةٍ إِذَا تُمْنَىٰ

And He created the two sexes, male and female, from a *nutfa* when emitted.⁸

This verse clearly refers to meiosis of sperms taking place in testicular tubules when primary spermatocytes (46,XY) are divided into secondary spermatocytes (23, X and 23, Y) and mixed with the seminal fluid.

In another verse,

أَلَمْ يَكُ نُطْفَةً مِّن مَّنِيٍّ يُمْنَىٰ

Was [man] not a *nutfa* in an emitted seminal fluid?⁹

This verse is clearly referring to both sperms in the semen and ova in the follicular fluids (women's semen), which are also emitted at ovulation. This concept is evidenced in many hadiths referring to the fluids of men and women (*ma'*) and the semen of men

and women and *nutfa*. Following are examples of such hadiths:

قال: يا محمد مم يخلق الإنسان قال: من كل يخلق من نطفة الرجل ومن نطفة المرأة

A [Jew] asked the Prophet ﷺ: "O Muhammad, from what is man created?" The Prophet replied, "He is created from both man's *nutfa* and woman's *nutfa*."¹⁰

ماء الرجل غليظ وأن ماء المرأة أصفر رقيق

Man's fluid is thick and woman's fluid is thin and yellow...¹¹

Reference is made in these two hadiths to the man's semen and the woman's follicular fluid (semen), which is yellow, watery and thin at the ovulation time.

The fact that man is created from part (*nutfa*) and not from the whole of the seminal fluid is evidenced in the hadith:

ما من كل الماء يكون الولد

Not from all the fluid (seminal) is the offspring created.¹²

This is also referred to in the Qur'an:

وَلَقَدْ خَلَقْنَا الْإِنْسَانَ مِن سُلَالَةٍ مِّن طِينٍ ثُمَّ جَعَلْنَاهُ نُطْفَةً فِي قَرَارٍ مَّكِينٍ

Man We did create from *sulāla* [an extraction] of clay. Then we placed him as a *nutfa* in a *qarār makīn* [uterus].¹³

2. Zygote

The zygote is formed at the time of fertilization of the ovum. This process is referred to in the Qur'an:

إِنَّا خَلَقْنَا الْإِنْسَانَ مِنْ نُطْفَةٍ أَمْشَاجٍ

Verily, We created man from a mingled
nutfa ...¹⁴

This certainly can be interpreted to refer to the mixing of the two *nutfas*, the sperm and the ovum, i.e. fertilization.

3. Early stage of intrauterine life until the *'alaqa* is formed.

The evidence that the *nutfa* term includes blastocyst and early development up to day 40 counting from the first day of the last menstrual period (LMP) is drawn from the previously quoted Ibn Mas'ud hadith⁷ and from the Qur'an.¹³

The meaning of *nutfa* in the Arabic language is a little or very little fluid. Obviously a cell (sperm or ovum) or group of cells (zygote or blastocyst) can be described as droplets of fluids so the literal Arabic meaning of the term applies perfectly well.

B. The *'alaqa* is the second stage of development commencing with *al-ta'alluq* on day 41 menstrual age and continuing up to day 80 after which the pregnancy fills the whole uterine cavity. The different meanings of *'alaqa* in the Arabic language are "leech", "blood clot", and something that clings and sticks and becomes suspended to a thing.

Ancient scholars, noting the appearance of blood clots at abortion, thought that this term meant blood clot. With our recent knowledge, we now understand this term to mean suspended thing, as the product of pregnancy sticks to the uterine wall (implantation) (Figure 2) and then grows and hangs in the uterine cavity to become suspended from the uterine wall. This is why the *'alaqa* stage starts after, not at, the time of implantation (Figure 3).

C. The *mudgha* is the third stage of development extending from day 81 to day 120 menstrual age. The meaning of *mudgha* in the Arabic language is a morsel of meat or flesh, the size of a bite. However, the bigger pieces like the heart can also be described as *mudgha*.

It is clear that the pregnancy at day 80 (11 weeks, 3 days from LMP) consists of two *mudghas*. One is formed referring to the fetus (Crown rump length 46

mm), and the other is unformed, referring to the placenta, which is now fully developed and is about the same size. This conforms to the previously quoted passage of Qur'an, "*mudgha formed and unformed*" (emphasis added).⁶

The spirit is blown in the fetus at the conclusion of the *mudgha* stage. The significance of this fact is essential for the definition of human life and death.

Way of Calculation

In the hadith cited above⁷, the Prophet ﷺ refers to bringing together the creation, rather than to pregnancy. This clearly begins in the abdomen of the mother (in ovary) at day 1 of the menstrual cycle when an ovum, stored in the ovary since intrauterine life, starts its progress to mate with the other half (sperm). Therefore, the first day of last menstrual period is the starting point of calculating the 3 stages of 40 days each.

Functions of Each Stage

A. The *Nutfa's* Functions (Day 1-40)

1. Sex determination
2. Collection of creation of the new being. This refers to fertilization (*al-mashj*) in which the two halves are joined, collection of all materials required and all preparations for the actual formation of the new human being.
3. *Al-Taqdīr*, meaning in Arabic programming and determining of the features and fates, referring to chromosomal and genotyping of the new creature.

God ﷻ says:

مِنْ نُطْفَةٍ خَلَقَهُ فَقَدَرَهُ

He created him from *nutfa* and *qaddarahu* (determined his features and fate).¹⁵

4. Transfer to and settling in the uterus, which is indicated by the words *al-qarār al-makīn* as a place of settlement in which all due protection and all developmental requirements are adequately calculated and provided.

B. The *'Alaqa's* Functions (Day 41-80)

There is only one function of the *'alaqa* stage: organogenesis. This is a striking miracle in which the

Qur'an states very clearly that the actual formation (*khalq*) of the body starts at day 41 (week 5, 6 day) and is completed at day 80 (week 11, 3 days) (Figures 4 and 5). That is in full agreement with modern science. This is expressed in the Glorious Qur'an:

أَلَمْ يَكُ نُطْفَةً مِّن مَّنِيٍّ يُمْنَى
ثُمَّ كَانَ عَلَقَةً فَخَلَقَ فَسَوَّى

Was [man] not a *nutfa* in an emitted seminal fluid? Then did he become an *'alaqa*; then did [Allah] make and fashion [him] in due proportion ...¹⁶

C. The *Mudgha*'s Functions (Day 81-120)

Ossification of cartilaginous bone and clothing the bones with flesh (muscles and all other soft tissues) is a function of this stage. Allah ﷻ says:

فَخَلَقْنَا الْمُضْغَةَ عِظَامًا فَكَسَوْنَا الْعِظَامَ لَحْمًا

Then we made bones out of that *mudgha*.
Then we clothed the bones with flesh.¹⁷

However, this progress continues throughout intrauterine life and up to a certain age afterwards. There are probably more functions of the *mudgha* stage, which are not understood with our present knowledge.

Discussion

Some researchers in the subject concluded that all three stages are completed by day 42 of fertilization, citing the following hadith:

إذا مر بالنطفة ثنتان وأربعون ليلة، بعث الله إليها ملكا. فصورها وخلق سمعها وبصرها وجلدها ولحمها وعظامها

When 42 nights have passed over the *nutfa*, Allah sends an angel to shape it and make its hearing vision, skin, flesh and bones ...¹⁹

I do not believe this is the case. This hadith indi-

cates that the angel is sent to start organogenesis, not to witness its end.

Proper understanding of these scriptures results in two achievements:

1. The discovery of calculation from LMP rather than from fertilization.
2. The discovery of the functions of each stage, particularly the *'alaqa* stage's function, organogenesis.

Figure 6 summarizes the stages of development of the human from the world of *dharr* to infancy.

Conclusions

The miracle of the Glorious Qur'an and Hadith in the subject of human development is henceforth adequately exposed. This concept of staging man's creation implies different rules and regulations for each stage and provides the basic information required for other researchers. A review of the Islamic jurisprudence regarding abortion, definition of life and death, organ transplantation, genetic engineering and new methods of infertility management will benefit from these basic data.

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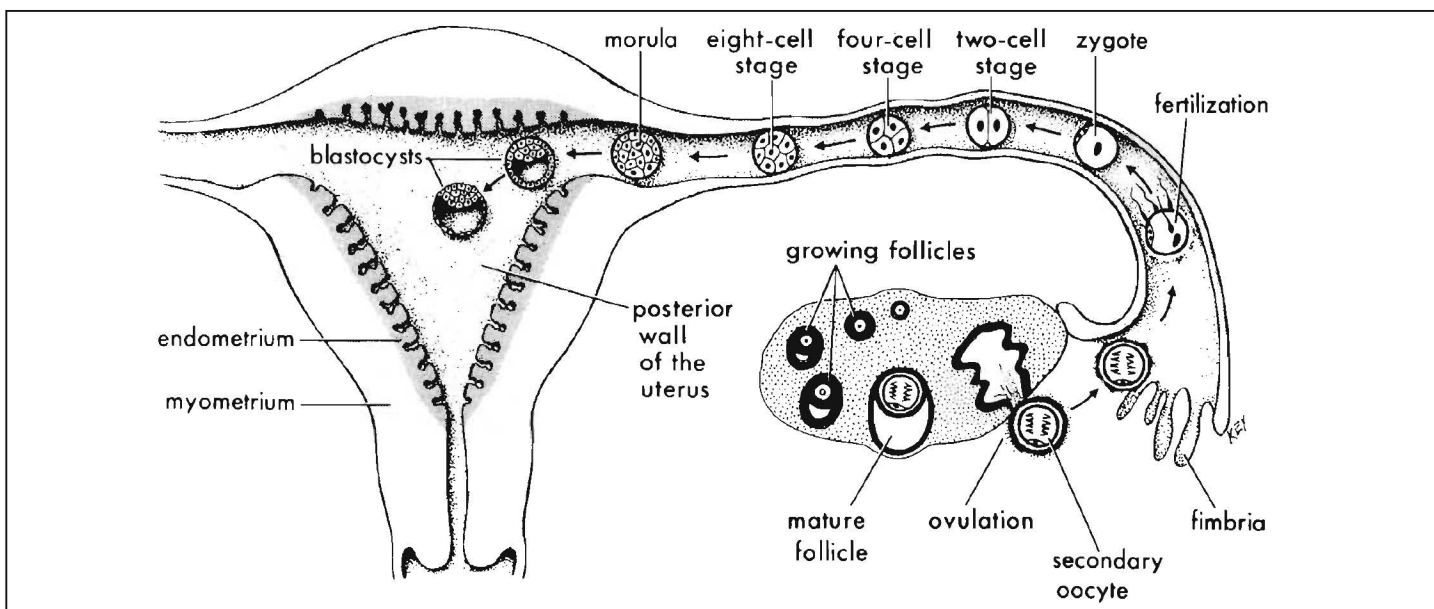


Figure 1: The transfer to the uterus during *nuṭfa* stage.

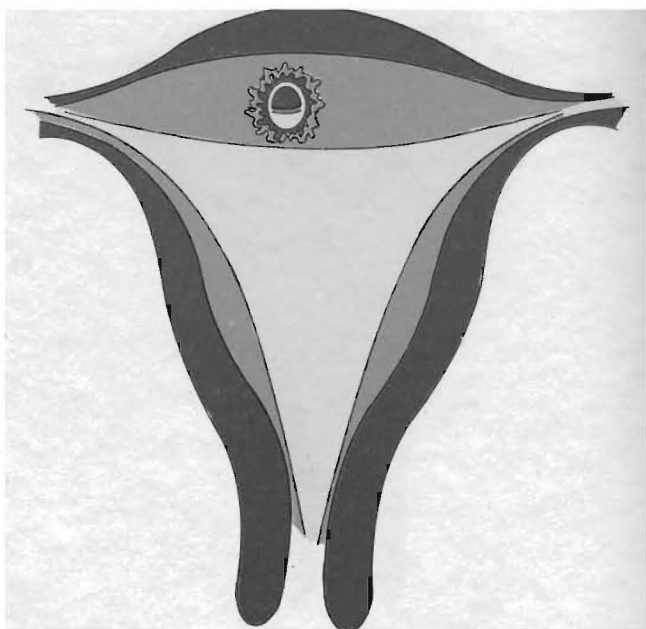


Figure 2. Nidation (implantation) occurs 6-7 days after fertilization or 21 days from the first day of the last menstrual period.

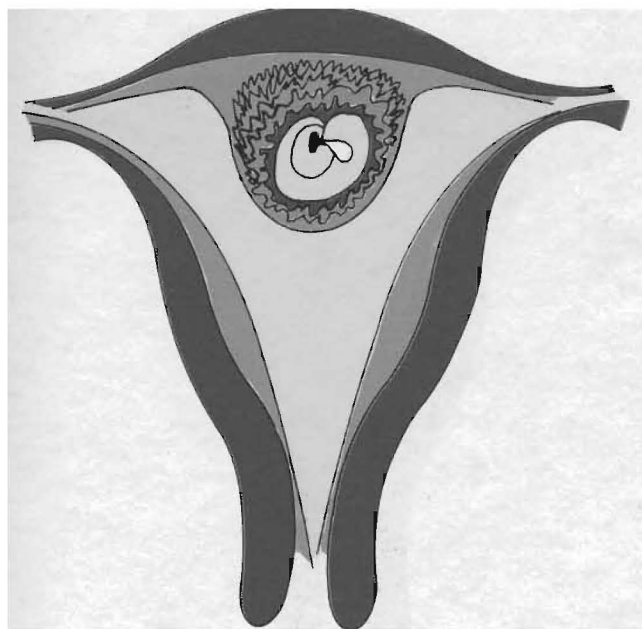


Figure 3. *Al-'Ulūq* (suspension) occurs at day 40 from the 1st day of the last menstrual period. The embryo now is *'alaqa*.

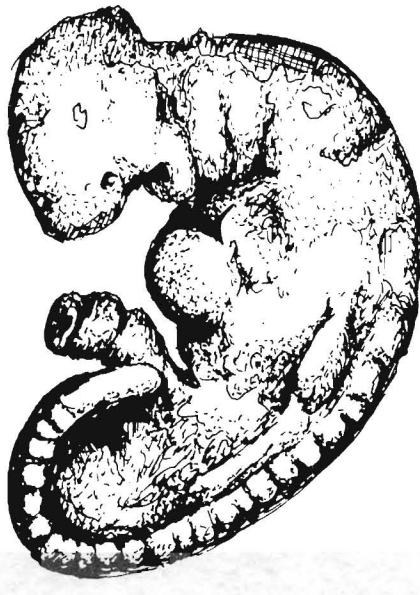


Figure 4. Embryo at day 41, the beginning of the 'alaqa stage.



Figure 5. Completion of organogenesis by day 80, the beginning of the mudgha stage.

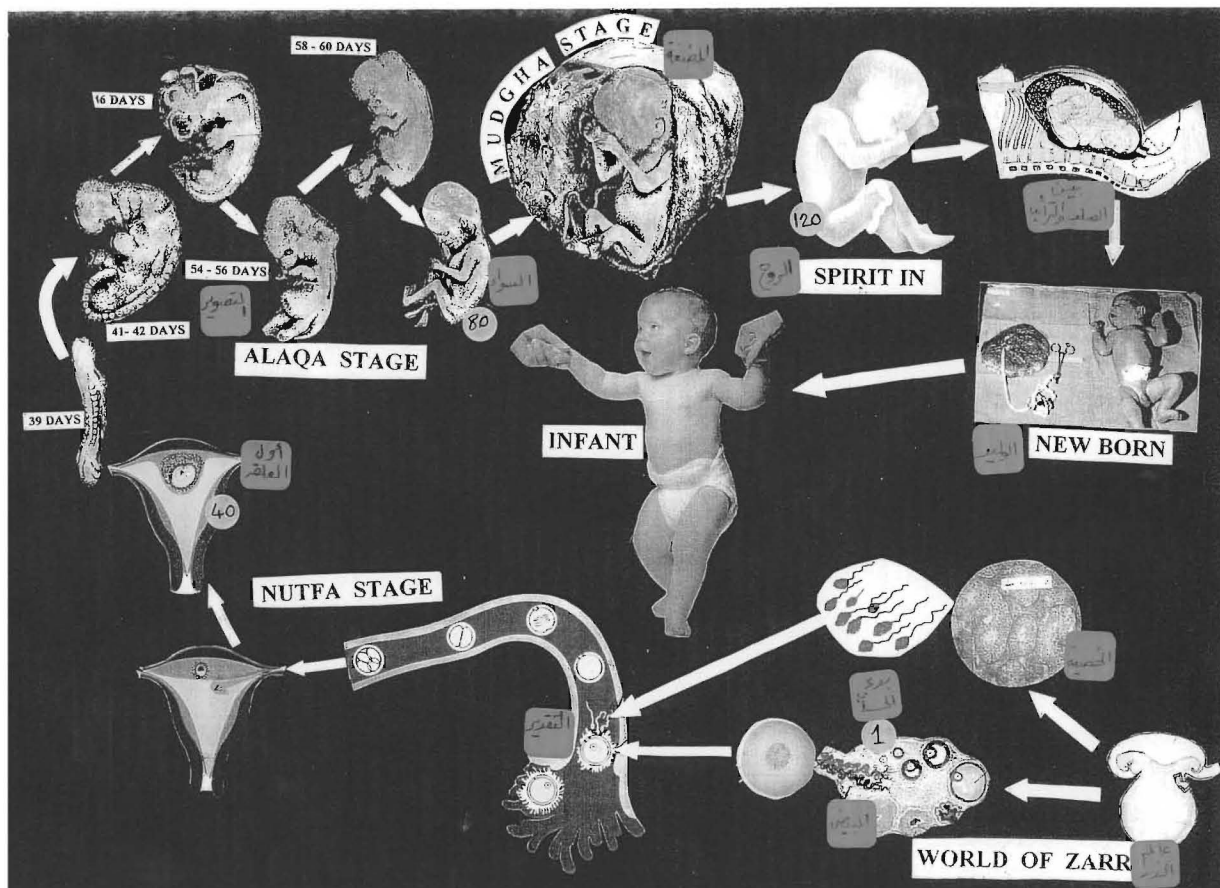


Figure 6. Stages of development of the human from the world of *dharr* to infancy. 'Ālam al-*dharr* (pre-temporal existence), beginning of maturation of the ovarian follicle at first day of the menstrual cycle, *nutfā* stage, 'alaqa stage, *mudgha* stage, spirit in at day 120 and birth.