

**INTEGRATION OF QUR'AN INTERPRETATION AND MODERN
EMBRYOLOGY: Study of Surah Al-Mu'minun Verses 12-14**

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Abstrak

Fenomena penciptaan manusia merupakan topik yang menarik untuk dikaji dari perspektif agama dan sains. Al-Qur'an, memuat uraian eksplisit mengenai tahapan pembentukan janin, mulai dari sari pati tanah, nutfah (air mani), 'alaqah (segumpal darah/ menempel), *mudghah*, pembentukan tulang belulang, hingga pembungkusan tulang dengan daging dan akhirnya menjadi makhluk hidup yang sempurna. Tujuan penelitian ini adalah untuk menganalisis proses pembentukan janin secara integratif melalui pendekatan tafsir dan ilmu embriologi kontemporer. Penelitian ini menggunakan metode *literature review* dengan menelaah berbagai kitab tafsir klasik dan modern, serta membandingkan hasilnya dengan kajian ilmiah yang diwakili oleh para ahli embriologi seperti Keith L. Moore. Hasil kajian menunjukkan adanya keselarasan yang signifikan antara urutan perkembangan janin menurut Al-Qur'an dan temuan ilmiah modern. Penelitian ini menyimpulkan bahwa integrasi antara wahyu dan sains tidak hanya menunjukkan relevansi Al-Qur'an dalam konteks keilmuan kontemporer, tetapi juga memperkuat pemahaman terhadap konsep *i'jaz 'ilmi* (kemukjizatan ilmiah), serta membuka ruang dialog yang konstruktif antara ilmu pengetahuan dan ajaran Islam. Implikasi dari penelitian ini adalah pentingnya mendorong pendekatan integratif dalam pendidikan Islam, khususnya dalam mengajarkan ayat-ayat kauniyah yang berkaitan dengan ilmu pengetahuan. Temuan ini juga dapat menjadi dasar pengembangan kurikulum berbasis integrasi agama dan sains yang mampu memperkuat keimanan sekaligus meningkatkan literasi ilmiah peserta didik.

Kata kunci: Al-Qur'an, embriologi, penciptaan manusia, integrasi sains dan agama.

Abstract

The phenomenon of human creation is an interesting topic to study from the perspective of religion and science. The Qur'an, contains an explicit description of the stages of fetal formation, starting from the essence of the earth, nutfah (semen), 'alaqah (a clot of blood/sticking), *mudghah*, the formation of bones, to the wrapping of bones with flesh and finally becoming a perfect living being. The purpose of this research is to analyze the process of fetal formation in an integrative manner through the interpretation approach and contemporary embryology science. This study uses the *literature review* method by examining various classical and modern textbooks, and comparing the results with scientific studies represented by embryologists such as Keith L. Moore. The results of the study show that there is a significant alignment between the sequence of fetal development according to the Qur'an and modern scientific findings. This study concludes that the integration between revelation and science not only shows the relevance of the Qur'an in the context of contemporary science, but also strengthens the understanding of the concept of *i'jaz 'ilmi* (scientific miracles), as well as opens up a space for constructive dialogue between science and Islamic teachings. The implication of this research is the importance of encouraging an integrative approach in Islamic education, especially in teaching kauniyah verses related to science. These findings can also be the basis for the development of a curriculum based on the integration of religion and science that is able to strengthen faith while improving students' scientific literacy.

Keywords: Qur'an, embryology, human creation, integration of science and religion.

Introduction

The Qur'an as the holy book of Muslims not only serves as a spiritual guide, but also contains scientific cues that are increasingly relevant to the development of modern science. One of the aspects that has attracted the attention of scientists and scholars is the Qur'an's description of the process of human creation, especially in Surah Al-Mu'minun verses 12-14. These verses describe in detail the stages of fetal development, starting from the germ (sperm), 'alaqah (a blood clot or something attached), mudghah (a lump of flesh), to the formation of bones and flesh and the blowing of the soul.

Interestingly, the findings of modern embryology as described in the work of Keith L. Moore and T.V.N. Persaud (2008) show a significant fit for these stages. Moore, a prominent embryologist, even stated that the description of the Qur'an could not have been based on scientific knowledge of the 7th century AD, corroborating the claim of scientific miracles (*i'jaz 'ilmi*).[1]

Man is the most perfect and noble creation of Allah swt among His creatures, created through a very orderly, complex, and miraculous process of creation. In the Qur'an, especially Surah Al-Mu'minun verses 12-14, Allah swt explains in detail the stages of fetal formation which starts from the essence that comes from the ground, then becomes nutfah (a drop of semen), then 'alaqah (an attached blood clot), mudghah (a lump of flesh), the formation of bones which are then covered with flesh, until finally a perfect human being is formed. This explanation not only has spiritual and metaphorical value, but also contains biological information that is very relevant and in accordance with modern embryological knowledge, thus showing the superiority of the Qur'an as a revelation that contains scientific truths that were not fully known to man at the time of revelation.[2]

Modern embryology studies the process of fertilization, embryo development, and fetal formation systematically through detailed stages. These processes include the fertilization of the egg by sperm, the implantation of embryos in the uterine wall, the formation of tissues and organs, to the development of bones and muscles that make up the structure of the human body. Interestingly, the Qur'anic description of the formation of the fetus is very much in harmony with these scientific stages, even though the Qur'an was delivered more than 1400 years ago, long before modern science developed. Therefore, the integrative study between the Qur'an and science is very important to show the harmony between revelation and contemporary scientific discoveries, which can at the same time strengthen the faith of Muslims and enrich the scientific understanding of human creation.[3]

The material on the formation of the fetus in Surah Al-Mu'minun verses 12-14 is interesting to study because it contains a multidisciplinary dimension that combines religious and scientific

aspects.[4] These verses not only contain spiritual explanations of the process of human creation, but also present a picture that is relevant to the findings of modern embryology. This uniqueness opens up opportunities to conduct integrative studies that can enrich the understanding of the relationship between revelation and science. In addition, research on this material is important to answer various debates and interpretations that develop related to the scientific miracles of the Qur'an, so that it can make significant academic contributions in the field of Qur'an interpretation and science. Thus, this study is not only theologically relevant, but also has strategic value in developing a constructive dialogue between religion and science in the modern era.

Research Methods

This study uses the literature review method as the main approach.[5] This method is applied to collect, analyze, and synthesize a wide range of literature relevant to the topic and formulation of the research problem.[6] With this method, researchers can comprehensively understand and summarize the results of previous research, theories, concepts, and findings from various sources, such as books, journal articles, research reports, and other related documents. This literature review approach allows for a systematic and in-depth study of the material being studied, thus providing a strong theoretical foundation in answering research questions.

Discussion

A. Text and translation of Surah Al-Mu'minun Verses 12–14

وَلَقَدْ خَلَقْنَا الْإِنْسَانَ مِنْ سُلَالَةٍ مِّنْ طِينٍ ثُمَّ جَعَلْنَاهُ نُطْفَةً فِي قَرَارٍ مَّكِينٍ ثُمَّ خَلَقْنَا الْنُّطْفَةَ عَلَقَةً فَخَلَقْنَا الْعَلَقَةَ مُضْعَةً فَخَلَقْنَا الْمُضْعَةَ عِظَمًا فَكَسَوْنَا الْعِظَمَ لَهُمَا ثُمَّ أَنْشَأْنَاهُ ثُمَّ خُلِقَ أَخْرَ فَتَبَارَكَ اللَّهُ أَحْسَنُ الْخَالِقِينَ

Indeed, We have created man from the essence of the earth. Then, We make it semen in a solid place (uterus). Then, We made the semen into something that hung (blood). Then, something that hangs We make into a lump of meat. Then, We made a lump of flesh into bones. Then, We wrapped the bones with meat. Then, We made him another being. Glory be to Allah as the best Creator.[7]

The word al-insana in this verse refers to the Prophet Adam (AS). Meanwhile, the meaning of sulalah is interpreted as the descendants of Adam. As Imam Al-Qurtubi said quoting from Ibn Abbas. The word min tin referred to here is from the ground that the Prophet Adam came from the ground. So from the meaning of the word according to Imam Al-Qurtubi the Prophet Adam A.S. was created from pure land while his children and grandchildren were created from earth and Fire. Slightly different in understanding this verse, according to Sayyid Quthub in his commentary, this verse gives a hint to the periodization of human creation. Coming from the land which is the beginning of creation and man is the final stage of the creation process, this is the essence of human creation.[8]

B. The Qur'anic Perspective: The Sequence of Creation

Surah Al-Mu'minun verses 12–14 explicitly explain the sequence of human creation from the perspective of the Qur'an. In the perspective of the Qur'an, the sequence of creation of the universe and man occurred in several stages which are described gradually and in detail in several letters, especially Surah Al-Mu'minun Verses 12–14. Here's the explanation:

1. Sulalah min tin

The concept *of essence from the soil* (sulālah min ṭīn) in Surah Al-Mu'minun verse 12 affirms that human creation began from the purest elements taken from the soil. In this context, "starch essence" means the best core or extract from the soil, which is the basis of the first human creation, namely the Prophet Adam AS.[9]

Mufasirs such as Imam Al-Qurtubi and Wahbah Zuhaili explain that this verse affirms the origin of man, where Adam was created directly from pure soil, while his descendants come from the essence of the soil that has gone through a long process in the food chain and metabolism of the human body. This process starts from plants that absorb soil elements, then consumed by humans, processed by the body into blood and food juice, and finally into semen which is the origin of the next generation.[10]

2. Nutfah (Sperm)

Nutfah in language means a drop of water or very little liquid. In the context of Surah Al-Mu'minun verses 12–14, nutfah is interpreted as semen, which is the liquid that is the origin of human creation after the essence stage of soil. The Qur'an affirms that man was created from a germ placed in the "qarār makīn" (solid place), which is the womb of the Woman.[11]

Nutfah is the result of processed food starch that comes from the soil, is consumed by humans, and through the body's metabolic process, eventually becomes part of the reproductive fluid (semen). Verse 13 mentions that the nutfah is placed in the "qarār makīn", which is interpreted as the womb. The uterus is a safe and sturdy storage place for the development of the fetus from the early stages to birth.[12]

Mufasirs such as Imam Syaukani and Imam Ar-Razi interpreted nutfah as white semen, which then turned into a clot of blood ('alaqah). Nutfah is mentioned in the Qur'an 12 times, always in the form of maṣdar mufrad, confirming the importance of this stage in the creation of man. In some interpretations, nutfah is also interpreted as "despicable water", emphasizing the humility of human origins so as not to be arrogant and always remember the power of Allah. [13]

3. 'Alaqah

The word '*alaqah*' in Arabic means something that sticks or hangs, and can also literally be interpreted as "a clot of blood". In the context of Surah Al-Mu'minun verse 14, '*alaqah*' refers to the early stage of human embryonic development after semen (nutfah) has attached and developed in the womb.

Imam Ibn Kathir and Al-Qurtubi interpreted '*alaqah*' as something that is attached and dependent, which physically resembles a blood clot attached to the wall of the womb. Tafsir al-Muyassar and al-Mukhtashar also emphasize that '*alaqah*' is the initial stage of human development which shows Allah's power in creating man gradually.[9]

4. Mudghah

In Surah Al-Mu'minun verse 14, after the *stage of 'alaqah* (a clot of blood that sticks), Allah swt explains that the embryo then turns into a *mudghah*, which in language means "a lump of flesh" or "a lump of flesh". This stage describes the development of the embryo that begins to form a more real and complex body structure.[11]

After the '*alaqah*' phase, the embryo develops into *mudghah*, which is a lump of flesh that begins to form muscle tissue and other soft tissues. At this stage, the embryonic cells undergo differentiation and proliferation, forming the mass of tissue that forms the basis of the body's organs and systems. In modern medicine, the *mudghah* phase can be associated with the embryonic period when the main organs begin to form and the body begins to take on a more pronounced shape.

Tafsir al-Muyassar and al-Mukhtashar affirm that *mudghah* is a lump of flesh that forms after the stage of a blood clot, signaling the development of an increasingly complex embryo. Imam Ibn Kathir and Al-Qurtubi explained that the *mudghah* stage shows how Allah created man gradually, from something very simple to a perfect being. The hadith of the Prophet Muhammad (saw) also mentions that the creation of man passes the *mudghah* stage for 40 days after the '*alaqah* stage', confirming the gradual process of human creation.[12]

5. Izham (Tulang Belulang)

Surah Al-Mu'minun verse 14 explains the stages of human creation gradually in the womb. After the embryo develops from *mudghah* (a lump of flesh), Allah SWT created *izham* or bones as the skeleton of the human body. This stage is the main physical foundation that sustains the body and provides the basic shape for further development.[14]

In the *izham* stage, soft tissue that was previously in the form of a lump of flesh begins to harden and the formation of bones that form the skeleton of the body. This skeleton serves

as a support for muscles, tissues, and organs of the body that will grow and develop next.

After the bones were formed, the next verse mentions that the bones were wrapped in flesh, that is, the muscles and other soft tissues that cover the skeleton.

According to Tafsir Al-Muyassar issued by the Ministry of Religious Affairs of Saudi Arabia, this process takes place gradually: after 40 days from *the stage of 'alaqah* to *mudghah*, then *mudghah* becomes bones, and the bones are wrapped in meat. After that, God blew the spirit so that it became a perfect being. Tafsir Al-Madinah Al-Munawwarah also affirms that the formation of bones and wrapping with flesh is proof of the wisdom and beauty of Allah's creation that is the best. The hadith of the Prophet (saw) confirms that the creation of man in the womb lasts for 40 days for each stage: *nutfah* (semen), *'alaqah* (a clot of blood), and *mudghah* (a lump of flesh), before finally becoming a perfect living being blown by the spirit.

6. Wrapping Bones with Meat

In Surah Al-Mu'minun verse 14, Allah swt explains the stages of human creation in stages in the womb. After the embryo develops into bones (*izham*), the bones are then wrapped in flesh (*lahm*). This process of wrapping bones with meat is an important stage in the formation of a complete and perfect human body. The meaning and process of wrapping bones with meat is as follows:

- Formation of Sturdy and Flexible Body Structures The bones function as the skeleton that gives shape and strength to the human body. However, bones without muscles and soft tissues cannot perform the function of movement and organ protection optimally. Therefore, God wrapped the bones in flesh, which is the muscles, veins, and other soft tissues that cover and line the skeleton.
- Meat Growth According to the Size of Bones, Tafsir Al-Madinah Al-Munawwarah explains that meat grows between bones according to the size and needs of each bone, thus forming a proportionate and functional body structure.
- Stages of Creation Orderly and Systematic, This wrapping process occurs after the bones are formed, showing God's order and wisdom in creating humans gradually, not all at once. This signifies the perfection and beauty of His creation.[15]

Tafsir Al-Muyassar (Ministry of Religious Affairs of Saudi Arabia) states that after the lump of flesh becomes bones, the bones are wrapped in flesh, and after that the spirit is blown so that it becomes a perfect living being. Tafsir Al-Mukhtashar emphasizes that the hardened bones become the support of the body and then wrapped in flesh that coats and protects the

bone, as part of the process of human creation. Tafsir Ash-Shaghir states that the wrapping of bones with flesh is a process that beautifies man's creation, making his body complete and ready to receive the spirit.

The wrapping of bones with flesh in Surah Al-Mu'minun verse 14 describes the very orderly and systematic process of human creation. Once the bones are formed as the skeleton of the body, they are wrapped in muscles and soft tissues that coat and protect the skeleton, forming a complete and well-functioning human body. This process is not only in accordance with the knowledge of modern medical science, but also contains a spiritual message about the greatness and perfection of Allah's creation.[15]

7. Insya' Khalqan Akhar

In Surah Al-Mu'minun verse 14, after explaining the stages of human creation starting from semen, blood clots, flesh clots, bones, and wrapping bones with flesh, Allah swt mentions the last stage: "*tsumma ansy'a'naahu khalqan akhar*" which means "then We made him another creature" or "became a perfect being".

The word *insha'* in language means "to create, organize, or maintain something" (I-jad al-syai' wa tarbiyatuh). This shows that human creation is not only limited to physical formation, but also a continuous process of maintenance and refinement. *Khalqan akhar* means another being or a different being, that is, a human being who has attained a perfect form, not only physically but also spiritually and mentally. This stage marks the transformation of man from a mere biological form to a being who has soul, intellect, and consciousness.

Ath-Thabathaba'i explains that the use of the word *insha'* (not *khalq*) in this verse shows that Allah not only created man physically, but also maintained and perfected the creature as a whole. The Tafsir of Al-Muyassar and other classical commentaries affirm that this stage is the peak of human creation, where the soul is blown into the body so that it becomes a perfect living being.

C. A Scientific Perspective in the Creation of Man

1. Human Origin of Soil Elements (Sulalah min tin)

The explanation that humans are derived from the essence of the soil, which can be scientifically attributed to the chemical and biological elements that make up the human body. The relationship between soil elements, the food consumed, and the metabolic processes that produce semen as the initial material for human creation.[16]

2. Phase Nutfah

A biological explanation of semen as a reproductive fluid that contains sperm. The process of fertilization and placement of the zygote in the uterus as a "solid place" (qarār makīn). The function of the uterus as a safe and conducive environment for embryonic development.[13]

3. Phase 'Alaqah

The process of implantation of a zygote attached to the uterine wall. An explanation of the shape of an embryo that resembles a blood clot or something sticky, according to modern embryological observations. Early stages of tissue development and circulatory system of the embryo.[13]

4. Phase Mudghah

The development of the embryo becomes a lump of flesh that begins to form the structure of the body. Cell differentiation and formation of muscle tissue and early organs. Compatibility with embryonic development in the early weeks of pregnancy.

5. Phase Izham

Formation of bone skeleton as a support for the body Process of osteogenesis (hardening of bones) in fetal development. Wraps the bones with the muscles and soft tissues that line the bones, forming the perfect body structure. Scientific explanation of bone and muscle function in the fetus

6. Creature Perfection Stage (Insya' Khalqan Akhar)

The transformation of the fetus into a perfect living creature with physical and mental capabilities. The process of fusing physical and non-physical elements (spirit) that makes human beings biologically and spiritually complete. Scientific interpretation related to the development of the nervous system and sensory organs that allow humans to function optimally.[11]

The focus of science in this study will highlight how Surah Al-Mu'minun verses 12-14 describe in detail the stages of fetal development that are in accordance with modern embryological knowledge, starting from fertilization, implantation, tissue and bone formation, to the perfection of living beings. The study also emphasizes the importance of integration between religious science and science to enrich human understanding of the origins and processes of life.

Conclusion

Surah Al-Mu'minun verses 12-14 describe the process of human creation in stages and systematically, starting from the essence of the earth (as the origin of the Prophet Adam), semen

(*nutfah*), a lump of blood (*'alaqah*), a lump of flesh (*mudghah*), the formation of bones (*'izham*), the wrapping of bones with flesh (*lahm*), to becoming a perfect being (*insha' khalqan akhar*). The interpretation of classical and contemporary scholars affirms that this verse not only explains the physical origin of man, but also reflects the greatness, power, and majesty of Allah swt's creation. The benefit of this research is to provide a deep understanding to Muslims, especially students and academics, about the relevance of the content of the Qur'an to modern science. This can increase appreciation of Islamic values while expanding scientific insight in the perspective of monotheism. The implications of this study show the urgency of an integrative approach in Islamic education, especially in conveying *kauniyah* verses related to science. These findings can be used as a basis for the development of a curriculum based on the integration of science and religion, in order to form a generation that is religious, scientific, and critically minded in looking at God's verses and the phenomena of the universe.

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