

COCCYX OR PRIMITIVE STREAK

“The whole body of the son of Adam will be eaten by dust except `ajb adh-dhanab (coccyx) for he was created from it and his body will be reconstructed starting with it.” In his Sahih, Imam Muslim reported on the authority of Abu Hurayrah that the Prophet (peace be upon him) said: “The whole body of the son of Adam will be eaten by dust except `ajb adh-dhanab (coccyx) for he was created from it and his body will be reconstructed starting with it.”

The Scientific Facts:

According to embryology, the coccyx (tailbone) is a small bone associated with the last bone of the spine and usually consists of four fused vertebrae and is considered to be the base of the primitive streak that precedes the formation of the whole fetus, especially the nervous system. After primitive streak disappears, only a small bone known as the coccyx remains.

The formation of the primitive streak: On the fourteenth day, the endoderm (innermost layers of the embryo) and the ectoderm (outermost layers of the embryo) grow until they become pear shaped. The front part will be wider than the back. At the back part, the ectoderm will actively formulate the primitive streak which appears for the first time on the fifteenth day after conception.

Rapid growth and cell division in the primitive streak begins and cells start to move rightwards and leftwards between the endoderm and the ectoderm forming a third layer called the mesoderm.

After the appearance of the primitive streak, the formation of the nervous system and the notochord begins and the bodily organs of the fetus start to take shape. If the primitive streak does not take place, bodily organs will not start their formation.

Due to its importance, Warnock British Commission (a commission specialized in human conception and embryos) has pointed out that the existence of the primitive streak is the point at which doctors and researchers have stopped conducting experiments on early fetuses produced by in vitro fertilization.

At its first appearance and due to its extensive activity, the primitive streak is followed by the following:

1- At the point when the neural tube closes, the otic placode and the lens placode starts to appear. The human brain starts to take shape at the upper two thirds of the neural tube while the spinal cord is created at the lower third which is below the fourth-fifth somite, as the first four somites are part of the base of the skull.

2- The mesoderm - which starts to take shape - grows extensively around the fetus cord creating somites which later turn into muscles and the backbone. Later, the early ends of the upper and lower limbs - which formulate the skeleton and the muscles, as well as the urinary

and procreative system - will stem from these somites. In this mesoderm, the peritoneum, pleura, and tumor membranes in addition to blood vessels, the heart, and the digestive system muscles, take form.

In this way, the formation of the primitive streak is an important indicator that the bodily organs and tissue of the fetus are being created. In fact, the stage known as organogenesis does not start except after the formation of the thickening of cell layers, the neural groove, and the somites. It extends from the beginning of the fourth week to the end of the eighth week. At the end of this period, the fetus is equipped with all basic systems and only tiny details and growth will follow.

What happens to the primitive streak? Having fulfilled the purpose of its existence at the fourth week, the primitive streak starts to shrink and its remains stay in the sacrococcygeal region. These very tiny remains of the primitive streak stay there forever.

Facets of Scientific Inimitability:

The hadiths dealing with the issue of the coccyx or the primitive streak are among the miracles of the Prophet (peace be upon him). Modern embryology has proven that man is created from this primitive streak which helps cells to grow and become full organs. It has its own effect on the formation of the nervous system (the neural groove, the neural tube, and then the whole nervous system) as well as all other organs. After fulfilling its task, the primitive streak vanishes and only a small part of it remains in the sacrococcygeal region. This remaining part (the coccyx) will be used when man's body is reconstructed and recreated on the Day of Judgment as told by the truthful Prophet (peace be upon him).