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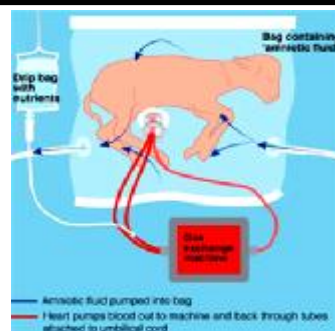
WITHOUT EGG, SPERM OR UTERUS, IT IS POSSIBLE TO GET BABIES

P. D. GUPTA

Human beings are very busy and in future it would be more so. Already we have evolved various time saving procedures in producing babies. In near future complete human beings will be produced in lab. Here we will be reviewing the time saving and without conventional methods of producing babies. Over the years technologies were developed which are hopefully able to give birth of babies in the laboratory rather than hospitals..

Sexual reproduction: Conventionally, in human, sexual reproduction (SR) plays a significant role in the continuity of species from one generation to another generation. Nobody can think to produce babies without SR. Human reproduction naturally takes place as internal fertilization by sexual intercourse. Lately to avoid this complicated procedure many technologies were developed.

Cloning: Cloning is the production of one or more human individuals by the use of their somatic cell nuclear transfer (SCNT) technology to obtain eggs that could develop into adult individuals or their parts that are genetically identical to the source. The reproductive cloning would involve making an entire cloned human, instead of just specific cells or tissues. Despite several highly publicized claims, human cloning still appears to be a fiction. No one has ever cloned a human being, though scientists have cloned animals other than Dolly, including dogs, pigs, cows, horses and cats (Gupta. Cloning, CSIR, New Delhi, Publication). Part of the reason is that cloning can introduce profound genetic errors, which can result in early and painful death.



IVF: During IVF, mature eggs are collected (retrieved) from ovaries and fertilized by sperm in a lab. Then the fertilized egg (embryo) or eggs (embryos) are transferred to a uterus of mother. One full cycle of IVF takes about three weeks. This is the most common method used commercially by clinical to produce children. Such labs. are increasing all over the world.

Ancient methods to produce tube babies: About 5000 years ago there was practices to produce tube babies, as for example all Kauravas of Mahabharata (for details see Sood and Gupta: Tube babies in past, present and future: J. Cell Tissue Research Vol. 21(1): PV 2 (2021). Such techniques used by old Rishi, are being used now by Aguilera-Castrejon et al. (Nature. <https://doi.org/10.1038/s41586-021-03416-3>, 2021). Looking into the possibility, in future a complete baby may be developing in laboratory.

A complete man in laboratory: Looking into the advancement of techniques there is strong possibility that sperm and ovum after fertilization may be placed in artificially developed uterus for further development by providing all essential nutrients and conditions available in mother uterus in order to avoid even surrogacy.

Concept of stem cells: without egg and sperm It seems Rishi Vedvyas had mass of embryonic stem cells and grew the foetus in the sterilized earthen pots filled with ingredient needed for human embryonic development. This story is exactly marching with the recent experiments done. Kagawa et al. Human blastoids model blastocyst development and implantation. Nature 601, 600–605 (2022). For further details see Wikipedia,embryoid body.