

ABERRATION OF FERTILIZATION

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Aberration of fertilization

Polygamy :

Triploid embryo is called polygamy which occurs due to supernumerary sperm. The ovum is known as polysperm ovum which bears three sets of chromosomes and develop three pronuclei. Out of which two pronuclei of male in origin. So, the embryo is called triploid embryo. Occasionally, there may be four number of pronuclei in the polygamy ovum.

Etiology :

It generally occurs due to fertilization of aged ova during delayed copulation. The aged ova has weak *zona reaction* and *vitelline block* ; thus, extra sperm (i.e. More than one) succeed entering the vitellus.

Supplementary sperm :

means more than one sperm succeed to pass through zona pellucida into the perivitelline space. It is common in pig, rabbit, and more common in mouse and rat. In fertilized rabbit ovum upto 200 supplementary sperm observe in the perivitelline space due to absence of zona reaction. Because , in rabbit there is higher incidence with many supplementary sperm in the perivitelline space, but a very low incidence of polyspermy probably might be due to rapid and effective vitelline block.

Supernumerary sperm and polyspermy ovum :

In spite of both zona reaction and vitelline block, extra sperm succeed entering the vitellus which are known as *supernumerary sperm*.

Ovum with supernumerary sperm is called *polyspermy ovum*.

Etiology of Supernumerary sperm / polyspermy ovum :

The vitelline block must either be absent or must be delayed until after zona reaction is in operation.

Polyspermy :

The sperms which are found more than one entering the vitellus of the ovum are called polyspermy.

Parthenogenesis :

Development of an egg without intervention of the sperm is known as parthenogenesis; it is commonly happens to invertebrates species.

Gynogenesis :

The ovum is activated by a sperm which take no further part in fertilization. The embryo result from gynogenesis is haploid.

Androgenesis :

The ovum is activated by a sperm in a normal manner, but the nucleus of the ovum takes no part in fertilization. The embryo results from androgenesis is haploid.

Suggested reading :

Reproduction in Farm Animals. 3rd. Edn. E.S.E. Hafez.