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Acephalous newborn rabbit (parasitic twin monster)

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A small rabbit was born yesterday without head. The head had not been eaten by the doe because there were no bite marks around the neck. The size of this fetus was 35% smaller than that of its litter brothers and sisters (Figure 1, 2). A thin skin recovers the entire chest and neck. The only thing that protruded very slightly was a small vertebra of the spine, from which a little bit of bone marrow emerged.

Figure 1: Normal newborn rabbit (top) and an acephalous monster (bottom). Picture courtesy of M. Gruaz)

Figure 2 : Normal newborn rabbit (top) and an acephalous monster (bottom). Picture courtesy of M. Gruaz)

Scary vision when realizing that this could happen to other animals and why not to humans.

Yet...

Such fetuses are also observed in humans and, to the best of our knowledge, this is the first case reported in a rabbit. Nowadays, the term "twin reversed arterial perfusion syndrome" is preferred to "acephalous acardia monster". It is a rare complication that has an incidence of 1 in 40,000 births in man. The affected fetus is not viable and the prognosis for the healthy twin is guarded due to heart failure and anemia.

This complication is observed only in monozygotic monchorionic mono- or biamniotic twins, that is, sharing a single placenta. As a result, vascular connections exist between the twins, which can lead to various pathologies such as the fetofetal transfusion syndrome or the twin reversed arterial perfusion syndrome. In the latter, one of the twins is structurally normal and healthy and serves as a pump, while the perfused parasitic twin has many abnormalities, e.g. a single umbilical artery with a reversed blood circulation, the absence of a heart structure or the absence of a head and neck.

The presence of arterio-arterial and vein-venous anastomoses between the twins leads to a reversed blood circulation in the umbilical cord of the acardia twin. The parasitic twin thus no longer receives blood rich in oxygen and nutrients via the placenta, but is perfused via its healthy

Figure 3: Normal newborn rabbit (top) and an acephalous monster (bottom). Picture courtesy of M. Gruaz)

twin. The healthy twin therefore gets blood for himself as well as for its acardic twin. The blood that reaches the acardic twin has a low pressure and is low in oxygen and nutrients. As a consequence, there is a standstill in the development of organs such as the heart and an absence of head, sometimes also of the neck and abdomen.

This donor-recipient phenomenon can be fatal to the healthy donor twin too, due to heart failure. It seems that the larger the size of the acardiac twin, the higher its weight, the better are the chance of survival of the healthy twin.

Acknowledgement

Huge big thanks to Mr. Michel Gruaz (Switzerland) for sharing this rare anomaly observed in one of the rabbit litters.