AN ACARDIAC MONSTER ASSOCIATED WITH TRIPLET PREGNANCY

(A Case Report)

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Malformations in twins and triplets are an interesting chapter in embryological pathology. One or more of the foetuses may be abnormal and in their extreme form there may be conjoined twins or one member of the twin may fail to represent all the anatomical features of a human foetus, as is found in acardiac and hemiacardiac monsters. Such specimens were previously termed as "placental parasites" till Ballantyne (1904, as quoted by Willis, 1958) proposed the term "allantoido-angiopagous twin". The case report is one of such monsters.

Case Report

Mrs. R., aged 32 years, was admitted to the obstetric ward of the Rajendra Medical College Hospital, Ranchi, on the 13th September 1964. at 10 P.M., with labour pains and marked respiratory distress, on account of hydramnios, at 34 weeks of pregnancy. She was a 9th gravida, without any history of twinning or congenital abnormalities in her family. She gave birth to a living female foetus weighing 966 g. on the same day at 11.30 P.M. A monster was expelled spontaneously one hour later. A third living male foetus weighing 1 kg. 23 g. was delivered normally on the 14th September 1964, at 1 A.M. One placenta with single cord was expelled at 1.30 A.M. The other placenta with two cords (Fig. 1) came out about half an hour later. The patient recovered but both the babies died within 24 hours. Non-availability of the dead babies for autopsy was unfortunate.

The placentae were examined. The first placenta was normal. The second placenta was larger and heavier than the first one, with two cords attached (Fig. 1). The umbilical cord of the monster was thin and contained only two vessels. These vessels had direct communications with the main vascular ramifications of the other umbilical cord in the placenta. The monster's umbilical cord did not have a separate insertion in the placenta.

The monster weighed 511 g. It was 20 centimetres long with a maximum width of 10 centimetres near the folded cephalic end. The umbilical cord was attached to its ventral aspect. The body surface was covered with skin and only a few digits were protruding at the narrow caudal end. There was no forelimb bud and the features of the face were also lacking.

X-ray photographs were taken. No evi-

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dence of cranial bone or forelimb bud formation was present. There was a vertebral column with ribs, ill-defined iliac bones, an elongated os pubis, a femur and a tibia on either side with a single midline bone presumably the fibula (Figs. 2 and 3). At the caudal end there were a few short bones of the feet which could not be separately identified due to poor calcification.

On dissection there was an oval coelomic cavity 4.5 centimetres long, limited dorsally by the arched vertebral column. Thin and narrow coils of intestine (Fig. 4) with a closed upper end and a blind bulb-like lower end could be easily identified along with one kidney (Fig. 5) and one adrenal. Muscular development along the femur and tibia were well marked.

One of the vessels of the umbilical cord proceeded along the anterior margin of the cavity and ended with numerous thin branches which could not be traced farther. The other vessel of the cord arched along the caudal part of the cavity. It was traced as far as the dorsal region of the cavity adjacent to the vertebral column where it became very thin with numerous branches. Heart was absent.

There was a spinal cord without the brain. Peripheral nerves were emerging in between the vertebrae and were seen proceeding laterally. All these organs were histologically examined and their nature confirmed. The kidney showed changes of polycystic disease (Fig. 5). No other viscera were seen. All the tissues dorsal to the vertebral column were markedly oedematous and presented a jelly like appearance.

Discussion

Acardiac and hemi-acardiac monsters have been classified as paracephalic or headed, acephalic or headless and amorphous or lacking all external characters of a foetus (Willis, 1958). They are known to produce dystocia during labour which was not a feature in this case. The specimen was an acephalic, acardiac, acormus monster with triplet pregnancy of the dizygotic type. The aforesaid malformation was seen in one of the foetuses of the monozygotic twin.

The possibility of the teratomatous nature of the present case could be easily excluded as the monster contained true organs with well recognisable features or none at all. Willis (1958) has stressed this as point of distinction between a teratoma and an acardiac monster. He states "they (teratomas)) sometimes show anomalous absence of a particular tissue, such as skin or skeletal tissue, which amorphi never lack, or anomalous multiplicity of particular structures —hundreds of little patches of nervous tissue, hundreds of intestinal or respiratory cysts or hundreds of teeth —which the most degraded amorphous foetuses never show". The presence of the spinal axis with peripheral nerves, well formed coils of intestine, the kidney and adrenal and bones of the lower extremity leave no room for any confusion on this point.

The mode of origin of such monsters is debatable. There are two main views. Either one twin becomes predominant and, by establishing early vascular connections with its fellow, reduces it to a parasitic form, or the defective twin was inherently defective from the beginning and is enabled to survive only by its parasitic connections with its co-twin. It is difficult to say as to which of these two factors is really responsible for the malformation in this case. Deficient circulation is known to cause extreme degrees of malformations and reduction of parts in embryos. Svejda (1947, quoted by Willis, 1958)

described a foetus pseudoamorphous with similar features as an acardiac or hemi-acardiac monster where the heart was grossly malformed. In the light of these the authors are inclined to agree with Willis's view that the reduced structure of the acardiac monster, as in the present case, is attributable partly to loss of rudiments of parts which were formerly present in the embryo and partly to failure of development of other later appearing organ rudiments consequent on anomalous circulatory arrangement in the embryo.

Summary

A case of acardiac monster associated with triplet pregnancy is reported.

Reference

1. Willis, R. A.: The Borderland of Embryology & Pathology, London, 1958, Butterworth & Co. Ltd. pp. 138-144, 447.

Figs. on art paper VIII