

Case Report

DICEPHALIC PARAPAGUS – TRIBRACHIUS – A CASE STUDY

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ABSTRACT

Background: Conjoined twinning is the most fascinating condition that affects human being as well as animals^{1,2,3}. Their images have been found in cave drawings and carvings many centuries back. Like all monozygotic twins, conjoined twins are always of same sex. It is a fairly rare occurrence, exact statistics are not known, but are estimated to be 1 in 200,000 live births⁴ with a higher incidence in India and Africa. It is estimated that about 70 percent of conjoined twins are females. Approximately 40 to 60 percent of conjoined twins are still-born, and about 35 percent survive only one day. The overall survival rate of conjoined twins is between 5 to 25 percent.

KEY WORDS: CONJOINT TWINS; DICEPHALIC; PARAPAGUS; TRIBRACHIUS

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INTRODUCTION

Conjoined twins are those, whose bodies are connected with each other. It begins as a single fertilized egg^{1,2,3}. The morula becomes a blastocyst on sixth day after the ovum is fertilized. An inner cell mass develops at one end within this vesicle. Conjoined twins are produced when this inner cell mass, derived from a single zygote, splits late and incompletely⁵. Conjoined twinning, however, only arises when the twinning event occurs at the primitive streak stage of development, at about 13-14 days after fertilization in the human. It is exclusively associated with the monoamniotic, monochorionic type of placentation⁶. It is believed that the highest incidence of conjoined twinning is encountered in the human. While monozygotic twinning may be induced experimentally following exposure to a variety of agents, the mechanism

of induction of spontaneous twinning in the human remains unknown. All agents that are capable of acting as a twinning stimulus are teratogenic, and probably act by interfering with the spindle apparatus.

CASE REPORT

A case of Dicephalic Parapagus - Tribraichius is brought from Department of Gynaecology, Sanjay Gandhi Memorial Hospital to Department of Anatomy, Shyam Shah Medical College, Rewa, Madhyapradesh (INDIA). It was of female sex and obstetrical history was unknown. Radiological and Ultrasound Examination Findings are- 2 Skulls, 2 Vertebral columns with ribs bridging the two columns, 4 Clavicles, 4 Scapulae, 3 Upper limbs (2 upper limbs were normal and 3rd one is rudimentary present on the back), 1 Broad ribcage, 2 Breasts, 2 Separate sacra, 1 Slightly broad pelvis, 2 Lower limbs, 1 Diaphragm, 2 Hearts, 1 Liver and 1 Umbilical cord.

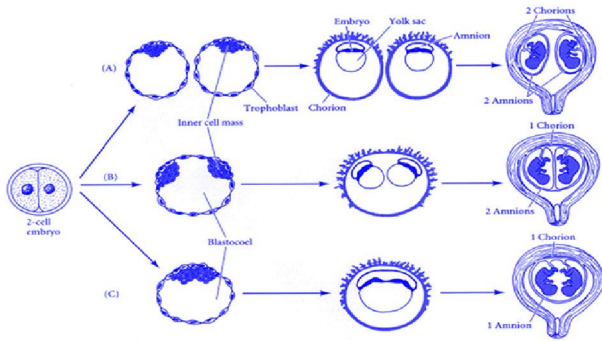


Fig 1. Diagrammatic representation of monozygotic twinning with relation to extraembryonic membranes (A, B and C showing respectively early, mid and late splitting).

Fig 2. Dicephalic Parapagus – Tribrachius (Front view- Single trunk with two heads and one umbilical cord).



Fig 3. Dicephalic Parapagus – Tribrachius (Back view- In between two heads a rudimentary limb is projecting upwards).



Fig 4. X- Ray Postero-anterior view- Showing two separate skulls and two vertebral columns joined by a single rib cage.



Fig 5. Ultrasound showing Heart and Liver.

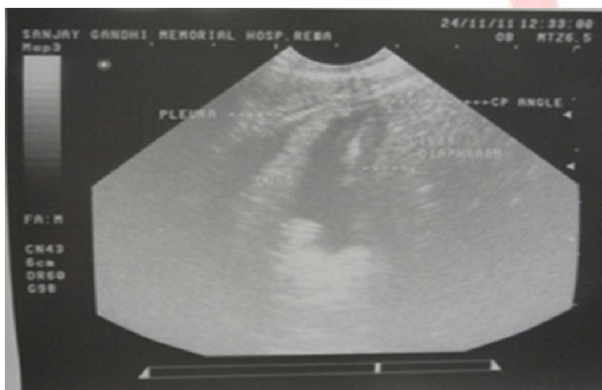


Fig 6. Ultrasound showing Lung, Pleura and Diaphragm

DISCUSSION

The Greek word pagos, meaning fixed, also called as SIAMESE TWINS. Famous conjoined twins, Chang and Eng Bunker, were born in Siam (now Thailand) in the early 1800's, as they traveled the world, they were known as the Siamese twins⁵. Researchers still do not know the exact mechanism regarding why some twins become conjoined. There may be specific genetic reasons and environmental reasons. More research is required to determine the cause of conjoined twins. If the split occurs more than twelve days post conception, the embryos do not fully divide and the twins may share body parts⁶.

Monozygotic twinning with relation to extraembryonic membranes:

A). Splitting occurs before the formation of the trophoblast, so each twin has its own chorion and amnion.

(B). Splitting occurs after trophoblast formation but before amnion formation, resulting in twins having individual amniotic sacs but sharing one chorion.

(C). Splitting after amnion formation leads to twins in one amnionic sac and a single chorion.

CONCLUSION

In conclusion conjoined twins are usually classified by the point at which they are joined.

- i. 73 percent are connected at mid torso (at the chest wall or upper abdomen)
- ii. 23 percent at lower torso (sharing hips, legs or genitalia)
- iii. 4 percent at upper torso (connected at the head)

Some conjoined twins live normally and some of them can be separated surgically⁷. Success of the surgery depends on sharing organs and skill of the surgical team. Craniopagus and Thoracopagus have worst outcome while Ischiopagus and Pyopagus have best results⁸.

REFERENCES

1. Mazzullo G, Macri F, Rapisarda G, Marino F. Deradelphous cephalothoracopagus in kittens. *Anat Histol Embryol*. Oct 2009;38(5):327-9. [[Medline](#)].
2. Sarah Hartwell. Feline medical curiosities: conjoined kittens. Available at <http://www.messybeast.com/freak-conjoined.htm>. Accessed July 26, 2009.
3. Kompanje EJ, Hermans JJ. Cephalopagus conjoined twins in a leopard cat (*Prionailurus bengalensis*). *J Wildl Dis*. Jan 2008;44(1):177-80. [[Medline](#)].
4. De Ugarte DA, Boechat MI, Shaw WW, et al. Parasitic omphalopagus complicated by omphalocele and congenital heart disease. *J Pediatr Surg*. Sep 2002;37(9):1357-8. [[Medline](#)].
5. "Conjoined Twins". University of Maryland Medical Center. January 8, 2010. Retrieved February 9, 2010.
6. Kaufman MH. The embryology of conjoined twins. *Childs Nerv Syst*. Aug 2004 ;20(8-9):508-25. Epub Jul 27,2004.
7. Jackson OA, Low DW, Larossa D. Conjoined twin separation: lessons learned. *Plast Reconstr Surg*. Apr 2012;129(4):956-63.

8. Fieggen AG, Dunn RN, Pitcher RD. Ischiopagus and pygopagus conjoined twins: neurosurgical considerations. *Childs Nerv Syst*. Aug 2004;20(8-9):640-51.

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