

## Thoraco-Omphalopagus: A Case Study

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### Abstract

Conjoined twins have interested people throughout history. In the earliest times they were known as gods, or feared as bad omens and exiled, abandoned or killed. In later days they were viewed as curiosities, and became circus or sideshow attractions. Now days, because of sophisticated separation techniques conjoined twins are no longer looked as freaks but individuals. Approximately 75% of conjoined twins are female, and 70% are fused at the thorax (Thoracopagus) or abdomen (Omphalopagus). The union can be in the frontal, transverse, or sagittal plane. In broad terms, conjoined twins may be regarded as a doubling anomaly. The later the incomplete embryologic separation occurs, the higher the likelihood of a complicated fusion.

**Keywords:** Conjoined; Twins; Thoraco-Omphalopagus.

### Introduction

Conjoined twins (also known as Siamese twins) are identical twins whose bodies are joined in utero.[1] A rare phenomenon, the occurrence is estimated to range from 1 in 50,000 births to 1 in 100,000 births, with a somewhat higher incidence in Southwest Asia and Africa. Approximately half are stillborn, and a smaller fraction of pairs born alive have abnormalities incompatible with life.[2,3] The overall survival rate for conjoined twins is approximately 25 percent. The condition is more frequently found among females, with a ratio of 3:1.

### Case report

A case of Thoraco-omphalopagus is brought from the department of Gynaecology to department of Anatomy, S.S.M.C, Rewa. These are identical twins of female sex with symmetrical conjoined twinning of Thoraco-Omphalopagus, united in coronal plane. Crown Rump length of both fetuses are 32 cm and 35 cm respectively (Figure 1 and Figure 2).

**Figure 1: Thoraco-Omphalopagus - Lateral view, showing fused chest and abdomen**



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(Received on 20.07.2013, accepted on 12.08.2013)

**Figure 2: Thoraco-Omphalopagus - Superior view, showing two separate heads**



*Radiological findings: (Figure 3)*

- 2 Skulls
- 2 Vertebral columns
- 2 Separate sacra
- 4 Upper limbs (2 on each side)
- 4 Scapulae
- 4 Clavicles
- 2 Broad ribcages
- 4 Lower limbs
- 1 Umbilical cord

### Discussion

How does it happen? If the split occurs more

**Figure 3: X-Ray, Lateral view - showing two separate vertebral columns**



than 12 days post conception, the embryos do not fully divide and the twins may share body parts.[4] Researchers still do not know the exact mechanism regarding why some twins become conjoined. There may be specific genetic reason responsible for delaying the fertilized egg from splitting into two embryos. There may also be environmental reasons that prevent the egg from splitting completely. More research is required to determine the cause of conjoined twins.

On embryological ground, some generalizations are of assistance in the evaluation of conjoined twins:

1. From the clinician's point of view, the question of the degree of completeness of each of the conjoined twins is of fundamental importance. The more extensive the conjoining, the more incomplete the twins and the more extensive the sharing of viscera and other vital structures. It would follow that external conjoining of extensive degree suggests the probability of a high degree of internal asymmetry, but the extent of the internal joining is only partially suggested by external examination.
2. One concept of the mechanism of conjoining suggests a defect in the development of the primitive streak. It is postulated that cellular injury and molecular interference result in the development of two inductor centers. A second factor which conditions the development of conjoined twins relates to the degree of propinquity that exists between two developing embryonic axis on a single embryonic disc. The area of maximal chance for conjoining have greatest possibilities for fusion, active metabolism and spatial crowding. A review of the clinical literature of conjoining supports this embryologic concept.
3. By embryologic corollary, one might expect structures rostral to the umbilicus to be the most often conjoined. For example, fusions and sharing of

pericardium, heart, diaphragm, liver and gastrointestinal tract would be expected to occur in conjoined thoracopagus twins.

Separation of conjoined twin is a challenge to the surgeon, all of them cannot be separated due to sharing of vital organs but others can be separated and live normal life. Success of the surgery depends on skill of the surgical team and point of joining.[5] Craniopagus and thoracopagus are very difficult to separate as they may share vital structures, while ischiopagus and pyopagus can be separated surgically and have good outcome.[6,7]

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