SUCCESSFUL SEPARATION OF CRANIOPAGUS TWINS

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The first mention of craniopagus twins appears to be in the Cosmographiae Universalis of Sebastian Münster. The Latin (1559), French (1575), and German (1628) editions all include a brief reference to the birth of two daughters joined at the foreheads, in Bierstadt in September 1495. There are wood cuts in both the Latin and German editions showing two girls standing with their heads turned toward each other and united, the right frontal region of one to the left frontal region of the other. The most astounding feature of this report is that these two children lived to the age of 10, when one died and was then "cut off" from the other. The second child then "died soon after her sister." This was not only the first case reported and the first recorded attempt at separation but also established a record for longevity.

Trenkner in 1938 collected 24 cases from the literature and reported an additional case. However, he did not mention the cases of Löwenberg, Dabelow, Rogers, Schneider, and Sonnenburg or the 6 cases of Baudouin. Since Trenkner's report, Robertson, Barbosa, and Sugar and his associates have reported additional cases. The case reported here would then be the 40th. This does not take into account Warschauer's cases. This author reported a case in 1909 and referred to 21 cases from the literature. Only 2 are identified by an author. These 2 and the case reported by Warschauer are included by Trenkner. How many of the remaining 19 have been included in other reports is not clear.

The attachment or point of union of the heads is quite variable and often is not described accurately. However, a parietal union appears most common. Varying degrees of rotation of the children and varying states of fusion of the dura mater, absence of the dura mater and fusion or continuity of the brains are reported.

A number of attempts (6) at surgical separation are recorded, usually in the earlier cases after the death of one child. In the case reported by Robertson an exploration was carried out at 4 months of age but separation was not performed. Until the case of Sugar and his associates there were no recorded survivals of more than a few hours after separation. One of Sugar's patients died a month after operation without regaining consciousness, the other survived. In the case to be reported both children have survived and
are well at the age of 2 years. One has some neurological deficit, the other appears to be developing normally.

These twin girls were born in a Chicago hospital by Caesarian section on Oct. 1, 1954. They were transferred to Mercy Hospital 45 days later on Nov. 15, 1954. At that time their combined weight was 15 pounds, 12 ounces. Both girls appeared to be healthy normal children, except for the union of the two heads. Figs. 1 and 2 show the location and extent of this union and Figs. 3 and 4 show the roentgenographic appearance of the union. It was felt initially that the manner of junction with the two heads nearly at an angle of 180° indicated that the contents of the intracranial cavities were separate and especially that each child had a separate longitudinal sinus. It was impractical for either child to lie on her back. The two heads were not in the same anteroposterior plane and this necessarily produced some lateral rotation of the cervical spine in each child as they were placed first on one side or the other. This rotation of the cervical spine was to result in torticollis for the smaller child.

**Fig. 1.** Photograph of children at 2 months of age. L. faces the camera.

**Fig. 2.** Photograph of children at 2 months of age. S. faces the camera.