A CASE OF COMPLETE SAGITTAL CLEFT VERTEBRA IN EARLY MEDIEVAL POLAND

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INTRODUCTION

Sagittal cleft vertebra has rarely been reported for archaeological remains. They occur less frequently than coronal clefts, even in modern populations (Saada et al., 2000). Presented here is a unique case of complete sagittal cleft vertebra, observed in a child from an early medieval population (11th-12th c.) in Giecz, Poland. The description of this exceptional case is a significant contribution to the paleopathological literature and to the understanding of such developmental anomalies that existed in the past, as well as today.

SAGITTAL CLEFT VERTEBRA

Sagittal cleft vertebra, also known as butterfly vertebra, is a notochord field defect, which occurs when the notochord fails to regress. The consequence is either partial union or complete nonunion of a vertebral body's lateral halves (Figure 1). This defect typically occurs in the thoracic or lumbar region and sometimes affects adjacent vertebrae. It occurs more often in males (Barnes 1994).

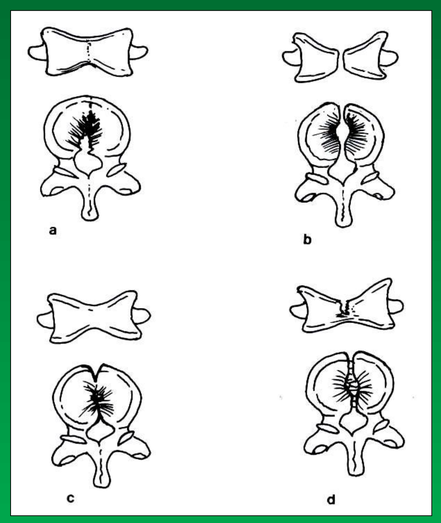

FIG. 1 Illustration depicting the types of cleft vertebrae: a. Narrow bifid, b. complete cleft, c. connecting bony-bridge, d. connecting bony strands (Barnes,1994:39).

CASE DESCRIPTION

Site Gz.4, grave 23/07

Grave 23/07 is a child, estimated 6-9 years old at the time of death. The available vertebrae include: C1-C3, C7, T2, T4, T7, T10, T11 and all 5 lumbar, however it is only T11 that exhibits this defect (Figures 2-3).

The cleft widens partially through the vertebral body, leaving a larger gap in the central to posterior portion. The lateral halves are asymmetrical, the left side of which is larger. A narrow gap can be viewed in the anterior portion of the vertebral body (Figure 3) .

FIG. 2 Complete sagittal cleft in T11 from grave 23/07. Superior view. Scale is in cm.

FIG. 3 Detail of complete sagittal cleft in T11 from grave 23/07. Anterior view.

FIG. 4 Partial sagittal cleft in T9 from grave 99/01. Superior view. Scale is in cm.

PROGNOSIS

- Minor involvement:
  Can be asymptomatic and may go unreported (Barnes1994).

- Moderate involvement:
  Diminished height of the anteriorly wedged vertebral body often produces kyphosis (Mann and Hunt 2005).

- Severe involvement:
  Can result in abnormalities in the ribs and visceral defects in the gastrointestinal tract or central nervous system (Barnes,1994). Complete clefts are so severe that, according to Diethelm (1974; in Freyschmidt *et al.*,2003:653), they are considered incompatible with life.

DISCUSSION

Few cases of sagittal cleft vertebra have been reported in the archaeological record (Mann and Verano 1990; Merbs and Wilson 1962; Rocek and Speth 1986; all in Barnes 1994:38-39). Currently, one other case of sagittal cleft vertebra has been observed in the Giecz Collection. An adult male (estimated to be 35-45 years old at the time of death) exhibits a partial, bifid type cleft in T9 (Figure 4). As Merbs and Wilson (1962) suggest, there may be a mode of inheritance involved with this condition.

Although Freyschmidt *et al*. (2003) state that a complete cleft is incompatible with life, depictions of other reported cases (Barnes 1994:39) suggest otherwise. A more thorough review of the literature, both clinical and paleopathological, is thus warranted.

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