

Total spina bifida occulta of the sacrum

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ABSTRACT

Spina bifida occulta results from abnormal neurulation, characterized by incomplete dorsal midline closure of the osseous tissues; thus leaving the spinal cord relatively unprotected. Spina bifida occulta of the sacrum is the most common type of spinal abnormality. We report a case of total spina bifida occulta, in a dried sacrum specimen. This developmental defect must be considered for the sake of patient safety before undertaking caudal epidural block. If not, serious complications such as dural puncture may easily occur. © *IJAV*. 2008; 1: 26–27.

Key words [sacrum] [total] [spina bifida] [occulta]

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Introduction

The level of non-closure of the lamina of the sacral bodies is variable [1]. Many sacrum have S5 or also S4 open, exposing the dorsal surface of the fifth sacral body [2]. Abnormal spina bifida may also result in the exposure of all the structures in the sacral canal [3]. The sacrum is clinically important for caudal epidural block, which is usually performed in the diagnosis and treatment of lumbar spine disorders [3,4].

We present a rare specimen with total sacral spina bifida occulta, which may be clinically important for anesthesiologists and neurosurgeons. Exhaustive macroscopic observations were performed on the sacral bones in our collection in order to describe the variations as well as to identify other anomalies.

Case Report

Caucasian origin spines were carefully observed for any non-metric variations. We noted a spine showing total sacral spina bifida occulta. The pictures of the specimen were taken (Figure 1). In this specimen, posterior laminae of all sacral vertebrae were totally unfused. The space in the sacrum was more likely a groove rather than a canal (Figure 1). No other abnormalities were observed.

Discussion

Many authors have published data on the incidence of spina bifida occulta, with varying results. The reported frequency varies greatly among researchers and populations [5]. The reported clinical significance of

sacral spina bifida occulta ranges from an anatomical variant of little or no importance on its own to a very



Figure 1. Posterior view of the sacrum shows a dry bone specimen of sacral spina bifida occulta, where there is failure of closure of the sacral canal at all sacral levels.

important cause of meningocele or neurological deficits [5]. Especially, if not associated with any external manifestation, this abnormality is suggested to be linked with a variety of conditions including posterior disc herniation, backache, enuresis and neurological abnormalities of the feet, and functional disorders of the lower urinary tract [5,6,7,8]. In the presence of spina bifida would the planning of screw fixation certainly pose a challenge for the neurosurgeons [3]. This abnormality is clinically important for the caudal epidural block (CEB), which is usually performed in the diagnosis and treatment of lumbar spine disorders [4].

The knowledge of exact topographical anatomy of the sacrum is important for such procedures. Presence of anatomical variations may possibly contribute to the failure

rate of caudal epidural block, transpedicular and lateral mass screw placement [3,4].

Presence of spina bifida may increase the likelihood of damage to the sacral nerves and create difficulty in internal fixation via screws [3]. An important point in CEB is awareness of the distance between the sacral hiatus and dural sac, anatomically in relation with the risk of dural puncture. A bony septum in the sacral hiatus, hiatal agenesis or complete agenesis (spina bifida) causes failure of CEB in 7% of cases. Total spina bifida and detection of the dura mater just beneath the hiatus have been reported in 1% of cases [4,9].

This congenital defect must be considered before undertaking caudal epidural block. If it is overlooked, serious complications may easily occur.

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