Pelvic obliquity

Angulation of the pelvis from the horizontal in the frontal plane.

Pelvic obliquity can be caused by leg length inequality, contractures about the hips, as part of a structural scoliosis, or as a combination of two or more of these causes. Careful physical and radiologic evaluations are necessary to establish the correct diagnosis. Treatment is then directed toward the specific cause, ie, leg length balancing, release of hip contractures, or scoliosis correction.

Structural scolioses with pelvic obliquity may be either congenital or paralytic. If a traction roentgenogram reveals the curve to be flexible enough that the pelvis can be fully leveled, then a posterior fusion only is necessary. If the pelvis will not level with traction, then anterior convex wedge excisions (discectomies for the paralytic, hemivertebra excision for the congenital) are necessary for achieving adequate correction. Posterior instrumentation and fusion must follow the anterior procedure. Various forms of internal correction and fixation devices are now available, and there is no single best procedure. Anterior internal fixation devices are being used less and less, while posterior segmental fixation with Luque rods are wires is being used more and more [1].

The relation of the pelvis to the spine has previously been overlooked as a contributor to sagittal balance. However, it is now recognized that spinopelvic alignment is important to maintain an energy-efficient posture in normal and disease states. The pelvis is characterized by an important anatomic landmark, the pelvic incidence (PI). The PI does not change after adolescence, and it directly influences pelvic alignment, including the parameters of pelvic tilt (PT) and sacral slope (SS) (PI = PT 1 SS), overall sagittal spinal balance, and lumbar lordosis. In the setting of an elevated PI, the spineadapts with increased lumbar lordosis. To prevent or limit sagittal imbalance, the spine may also compensate with increased PT or pelvic retroversion to attempt to maintain anupright posture. Abnormal spinopelvic parameters contribute to multiple spinal conditions including isthmic spondylolysis, degenerative spondylolisthesis, deformity, and impact outcome after spinal fusion. Sagittal balance, pelvic incidence, and all spinopelvic parameters are easily and reliably measured on standing, full-spine (lateral) radiographs, and it is essential to accurately assess and measure these sagittal values to understand their potential role in the disease process, and to promote spinopelvic balance at surgery. In this article, we provide a comprehensive review of the literature regarding the implications of abnormal spinopelvic parameters and discuss surgical strategies for correction of sagittal balance. Additionally, the authors rate and critique the quality of the literature cited in a systematic review approach to give the reader an estimate of the veracity of the conclusions reached from these reports [2].

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2)
Mehta VA, Amin A, Omeis I, Gokaslan ZL, Gottfried ON. Implications of spinopelvic alignment for the spine surgeon. Neurosurgery. 2015 Mar;76 Suppl 1:S42-56. doi: 10.1227/01.neu.0000462077.50830.1a. PubMed PMID: 25692368.