

The **first sacral vertebra** (S1) has a large, oval body, which is wider transversely than antero-posteriorly. The triangular vertebral foramen is formed by the vertebral body anteriorly and vertebral arch laterally and posteriorly. The superior margin of the anterior surface of the body projects forwards as the sacral promontory, this makes the surface concave anteriorly. The vertebral body is deeper anteriorly than posteriorly, thereby contributing to the lumbosacral angle.

The vertebral arch is formed by the pedicles and laminae. The pedicles are short and project postero-laterally from the vertebral body. The broad, flat laminae project postero-medially, fusing in the midline to give rise to a short spinous process (tubercle). Superior articular processes bearing the superior articular facets extend from the junctions of the pedicles and laminae. Projecting laterally from the vertebral body, pedicles and superior articular processes are broad, sloping transverse processes, each of which consists of the fused embryonic transverse process and embryonic costal element, which are fused with the rest of the vertebra to form the superior part of the lateral mass (ala).

Variations

Transitional vertebrae occur at the regions of the spine where the morphologic characteristics of the vertebrae markedly change from one area to the next. Transitional segments result in variations in vertebral number and/or identity and are most common at the lumbosacral junction.

Incorporation of the last lumbar vertebra into the sacrum (sacralization) reduces the number of lumbar vertebrae to four and separation of the first sacral vertebra from the sacrum (**lumbarization**) typically increases the number of lumbar vertebrae to six. The transitional segment may become partially or completely fused to the adjacent segment.

Ossification

The vertebral arches and body each ossify from single centers that appear between the tenth and twentieth weeks in-utero. The arches unite with each other during the first year and join with the vertebral body by the sixth year. A center for the costal element appears between the sixth and eighth months, it fuses with the arch by the age of five years and with the vertebral body by the age of eight years. Secondary ossification centers for the upper and lower surfaces of the vertebral bodies, spinous and transverse processes appear during puberty and fuse between the ages of 18 and 25 years.