

The fourth rib is a typical rib with a head, neck, tubercle, angle and shaft. The **expanded head** has two facets separated by a transverse ridge (crest), which attaches to the T3/T4 intervertebral disc via the intra-articular ligament. The lower facet articulates with the superior border of the fourth thoracic vertebral body and the upper facet with the inferior border of the third thoracic vertebral body. The flattened neck is directed antero-superiorly and gives attachment to the costotransverse ligaments. Its upper border is sharp, forming the crest of the neck and the lower is rounded. Its postero-inferior surface is rough and pierced by foramina. At the junction of the neck and shaft posteriorly is a prominent tubercle; it is divided into medial articular and lateral non-articular areas. The medial area has a small oval facet for articulation with the transverse process of T4 and the lateral costotransverse ligament attaches to the roughened non-articular area. The long shaft has smooth concave internal and convex external surfaces, rounded superior and sharp inferior borders. It is curved, bent at the angle and twisted about its long axis. The lower part of the internal surface is marked by the costal groove, which extends from the lower border of the neck to the junction of the middle and anterior one-third of the shaft. The shaft bends forward at the angle, marking the lateral limit of attachment of the erector spinae muscles. The concave anterior end is attached to the body of the sternum by a costal cartilage.

Ossification

The fourth rib ossifies from primary and secondary centers. The primary ossification center for the shaft appears near the angle during the eighth week in-utero, and secondary ossification centers for the head and articular and non-articular parts of the tubercle appear during puberty and fuse with the shaft after the age of 20 years.