1 Bones, Cartilages and Joints

ANNE GRETHE JURIK

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1.1 Introduction

The sternocostoclavicular (SCC) region represents the anterior part of the chest wall. It consists of the sternum, the adjacent articulating first to seventh costal cartilages, the sternoclavicular joint, the medial part of the clavicles and the surrounding soft tissue. The normal anatomy and development of the region has gained attention, partly because it can be used for determination of age and gender.

This chapter includes a summary of the normal fetal and postnatal development of the SCC region until the skeleton is fully developed.

1.2 Sternum, Including Manubriosternal Joint

In the embryo the sternum develops from two cartilaginous plates (sternal bands), one on either side of the midline, which normally fuse during the 2nd month of fetal life (Fig. 1.1) [14]. During the 9th week, the two sternal bands are completely fused in the midline, and the sternum is uniformly cartilaginous and resembles the
Fig. 1.1 Cartilaginous sternal development. The sternal cartilaginous primordia in embryos of 6 a, 8 b and 9 weeks c of age.

Fig. 1.2 Development of sternal ossification. The ossification of the individual sternebrae starts during the 5th to 6th month of gestation. There are ossified nuclei in the manubrium sterni and the first to fourth sternebrae at birth, but they may vary in number and configuration. The ossification centres gradually expand and fuse across the midline.