

# Thoracic and Chest Pain

CHAPTER

20

WITH KEVIN SINGER

## Thoracic pain

As with neck pain (Chapter 16) and low back pain (Chapter 21), it is often not possible for the clinician to make a precise pathological diagnosis in patients with pain in the region of the thoracic spine. The most common musculoskeletal problems are disorders of the thoracic intervertebral joints and the numerous rib articulations. Injury to the intervertebral disk, the zygapophyseal (also spelled as zygoapophyseal and zygapophysial in various countries) joints or other nociceptive structures of the thoracic spine may contribute local or referred pain. A typical presentation of these intervertebral joint problems is hypomobility of one or more intervertebral segments, given that this region of the spine is primarily required to contribute stability to the axial skeleton. There may be associated abnormalities of the paraspinal and periscapular muscles as well as adverse neural tension (Chapter 3). Thoracic intervertebral joint problems frequently refer pain to the lateral or anterior chest wall. Prolapse of a thoracic intervertebral disk is rare in sportspeople, however, it may be under-reported given the often diffuse symptoms that arise.<sup>1,2</sup>

While costovertebral joints are less commonly injured, problems may exist in isolation or in conjunction with an intervertebral joint problem.

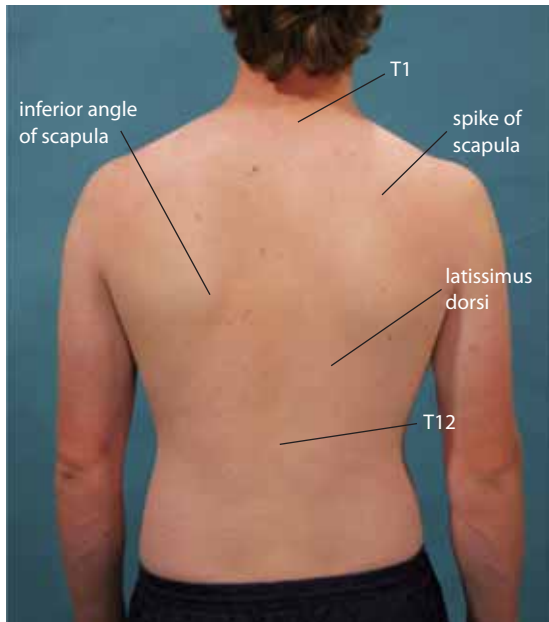
In adolescents, the most common cause of pain in the area of the thoracic spine is Scheuermann's disease, a disorder of the growth plates of the thoracic vertebra. A list of the causes of pain in the region of the thoracic spine is shown in Table 20.1. The surface, muscle and cross-sectional anatomy of this area is shown in Figure 20.1.

### History

The patient often complains of pain between or around the shoulder blades. The pain may be central, unilateral or bilateral. The pain may have commenced suddenly as a result of a sudden movement or may have been of more gradual onset. Thoracic spine pain is commonly aggravated by rotation (Fig. 20.2) or lateral flexion. Any associated sensory symptoms such as pins and needles or numbness should be noted. Although dermatomal patterns are more predictable in the thoracic region, symptoms may depart from such conventions. Vague pain noted in the region of

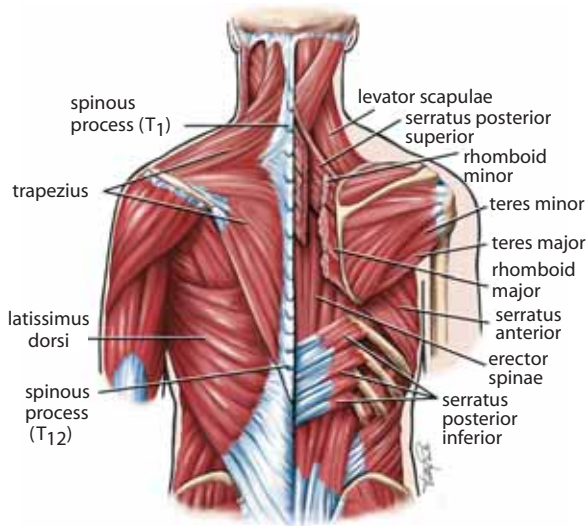
**Table 20.1** Causes of thoracic pain

Common	Less common	Not to be missed
Intervertebral joint sprain Disk Zygapophyseal joints Paraspinal muscle strain Costovertebral joint sprain Scheuermann's disease (adolescents)	Fracture of the rib posteriorly Thoracic disk prolapse T4 syndrome	Cardiac causes Peptic ulcer Tumor (e.g. carcinoma of the breast, secondary deposits)



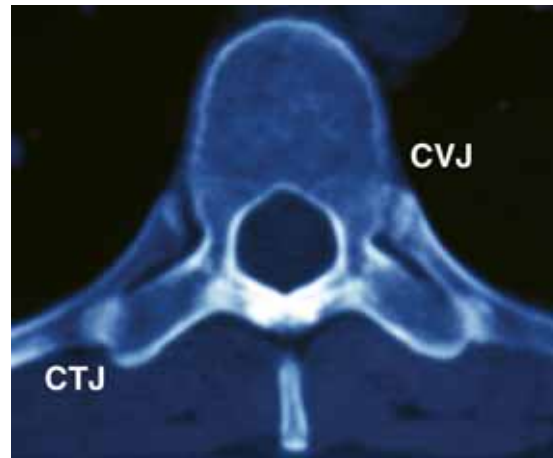
**Figure 20.1** Anatomy of the thoracic spine region

**(a)** Surface anatomy

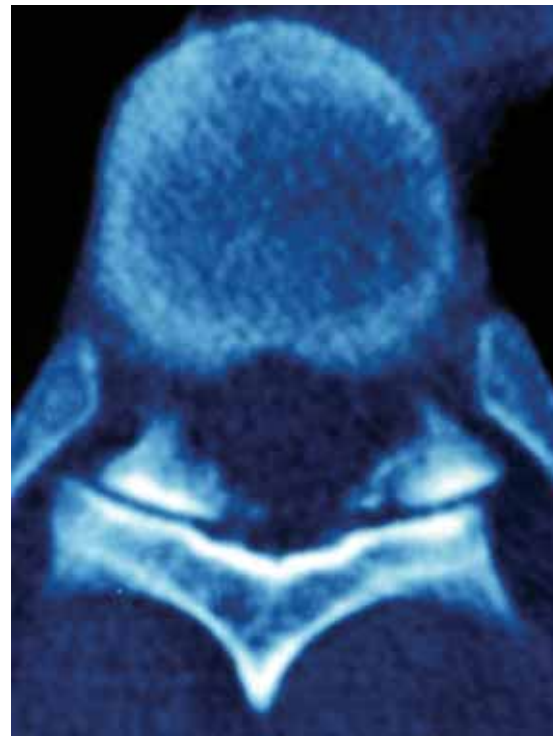


**(b)** Muscles of the thoracic spine region

the shoulder may relate to disturbance of the cervicothoracic junction and, similarly, buttock, hip or inguinal region symptoms may have a low thoracic origin.<sup>3</sup> The astute clinician should maintain an index of suspicion when examining the thoracic region given the close proximity between the internal organs and structural elements of the thoracic spine.<sup>4</sup>



**(c)** Axial CT image of the typical motion segment from the lower thoracic region. The most accessible rib articulation for palpation and mobilization is the costotransverse joint (CTJ), with the costovertebral joint (CVJ) attached firmly to the lateral margin of the vertebral body



**Figure 20.2** Axial CT depicting the nature of zygapophyseal joint translation in response to induced segmental rotation