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A 44-year-old lady underwent a mastectomy and breast reconstruction with a DIEP (deep inferior epigastric perforators) free flap, which involved exposure of the internal thoracic vessels to allow vascular anastomosis for free tissue transfer. These were dissected in the 3rd intercostal space deep to the internal intercostal muscles. During the procedure an unusually thick muscular belly was identified, whose fibres spanned the area between the 3rd and 4th intercostal spaces deep to the internal thoracic vessels. Typically only a layer of areolar tissue, the endothoracic fascia, separates parietal pleura from the first 2-3 intercostal spaces. This fascia blends inferiorly with transversus thoracis (sternocostalis), a thin muscle sheet arising as slips from the lower sternum to diverge and insert into the 2nd to 6th costal cartilages. In this case, the hypertrophied transversus thoracis inserted more superiorly than expected. This finding was clinically significant, as it rendered localisation of the vessels more challenging. However, dissection was easier and safer, as the fibres protected the vessels from underlying parietal pleura, decreasing the risk of pneumothorax. Although the disposition of transversus thoracis is known to vary, an extended literature review has not yielded any cases of hypertrophy to this extent in clinical practice.