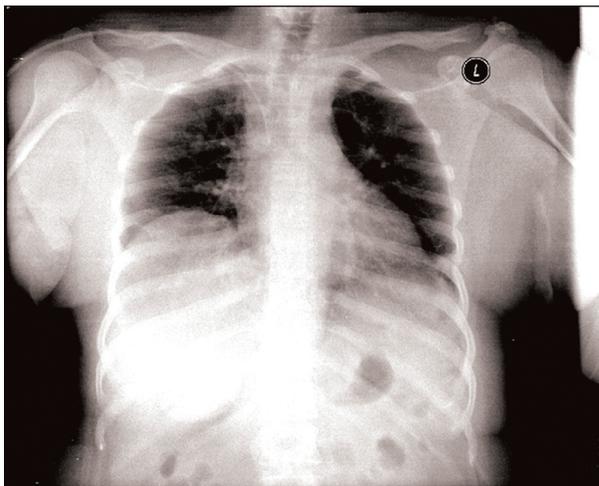


## Posture-related Displacement of Subclavian Catheter in Obese Patients

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الإزاحة الوضعية لِقِثْطَارٍ مَا تَحْتَ التَّرْقُوءَةِ عِنْدَ الْمَرْضَى  
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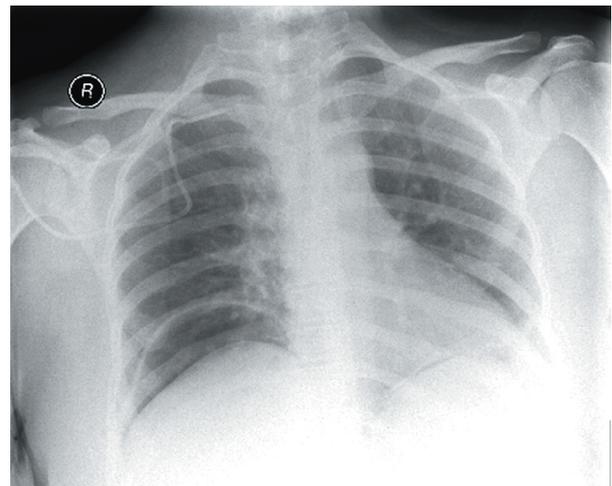
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**Figure 1:** Chest X-ray in supine position after central venous catheter placement

**S**UBCLAVIAN LINE PLACEMENT IS A COMMON procedure and complications, including catheter tip displacement, are rare. In the supine posture, the breasts in obese female patients placed in the standard recommended position for the subclavian line placement may allow a successful uneventful procedure. However once the patient assumes a sitting or an erect position, due to the lax skin and the weight of the breast, the site of insertion and anchorage on the skin moves down considerably. This leads to a loss in length of the intravascular part of the central venous (CV) catheter.

The images show the catheter displacement in an



**Figure 2:** In the erect X-ray, the tip of the central venous catheter is seen to have moved to a site just below the clavicle

obese patient of BMI 46. In Figure 1, the CV catheter tip is seen well in the superior vena cava. Figure 2 shows the CV catheter with the patient in sitting position. Note the “reverse Z” curve in the CV line; this indicates that the spot of insertion on the skin has moved down considerably. Clinically, the tip was confirmed not to be in the vein. This patient had pneumoperitoneum, from a small gastric perforation. The chest X-ray in the supine position does not show the gas under the diaphragm which is seen in the erect X-ray. In Figure 3, the displaced position of the spot of insertion may be noted. The clavicle and sternum have

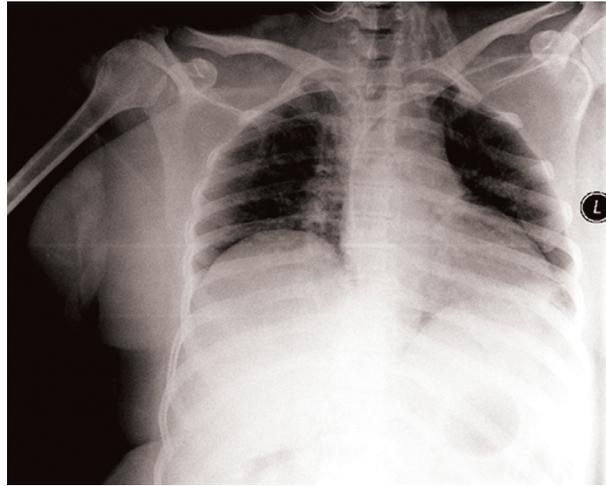


**Figure 3:** Picture of central venous catheter taken in sitting position

been marked. A tape measure shows the extent of displacement medially and caudally. The arrow indicates the position where the point of insertion should have been. In Figure 4, the CV catheter has been placed in the left subclavian vein, in the same patient. The tip is seen beyond the superior vena cava. Figure 5, shows the X-ray in erect position for the same CV catheter. It may be noted that the tip of the line has moved out by a few centimeters. The “Z” curve is again noticed showing the point of insertion well below the clavicle. This time the line remained effective as the initial length inserted had been long.

To minimise the loss in length the following precautions are recommended:

1. In obese female patients, the subclavian CV catheter can be inserted while taking into account the displaced position of the breast which tends to slip laterally and upwards in the supine position. An as-



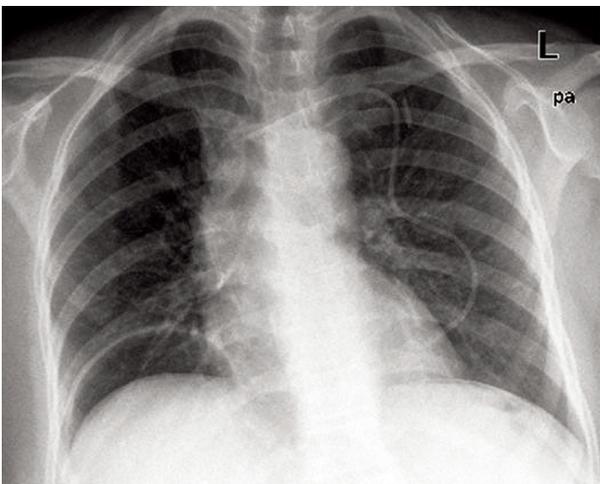
**Figure 4:** Subclavian central venous catheter passed on the left side in the same patient

sistant may retract the breast downwards and medially while selecting the position of insertion on the skin.

2. A chest X-Ray should be done to confirm the CV catheter position in the sitting or erect position in such patients.
3. Jugular line placement may be an alternative in these types of patients.

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**Figure 5:** Chest X-ray of patient in erect position