FAST Ultrasound
More Information: FAST Pericardial Pitfalls

The presence of an epicardial fat pad can be confused with a pericardial effusion.[74] Epicardial fat is usually found adjacent to the right ventricle and may be visualized as an echo-poor area adjacent to the right ventricle and the liver on a subxiphoid window (Figure 19).

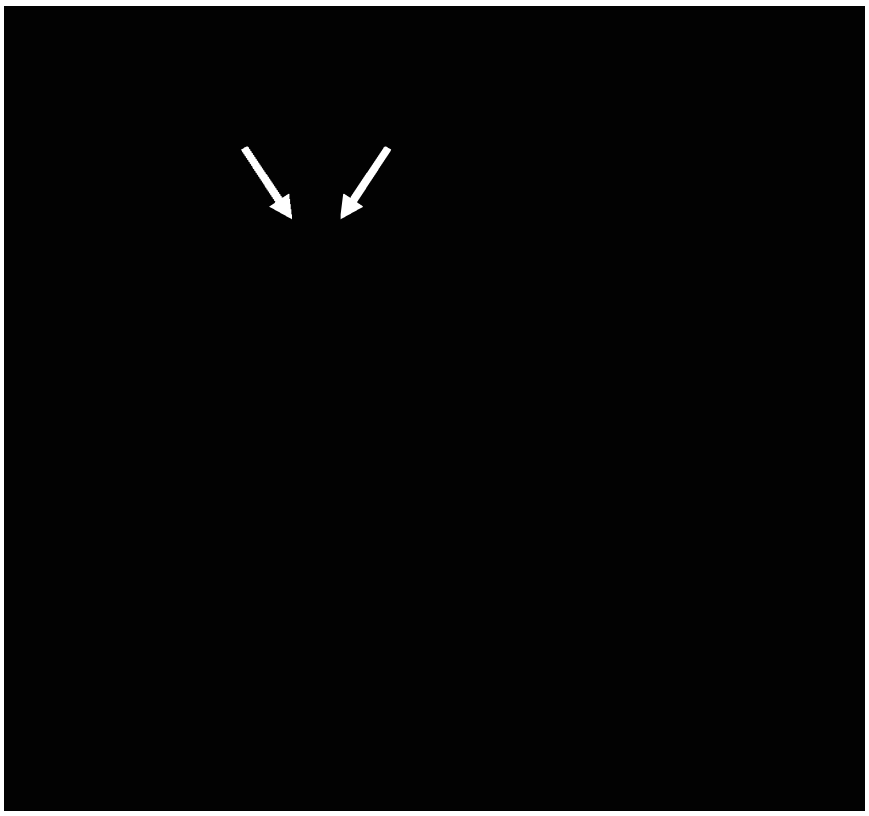

Figure 19. Epicardial fat pad (arrows)

Epicardial fat pads are rarely circumferential and this may provide help in distinguishing an epicardial fat pad from a pericardial effusion (Figures 20A and 20B - on next page).

Figure 20A. Subcostal window with small, circumferential, pericardial fluid collection (arrows).

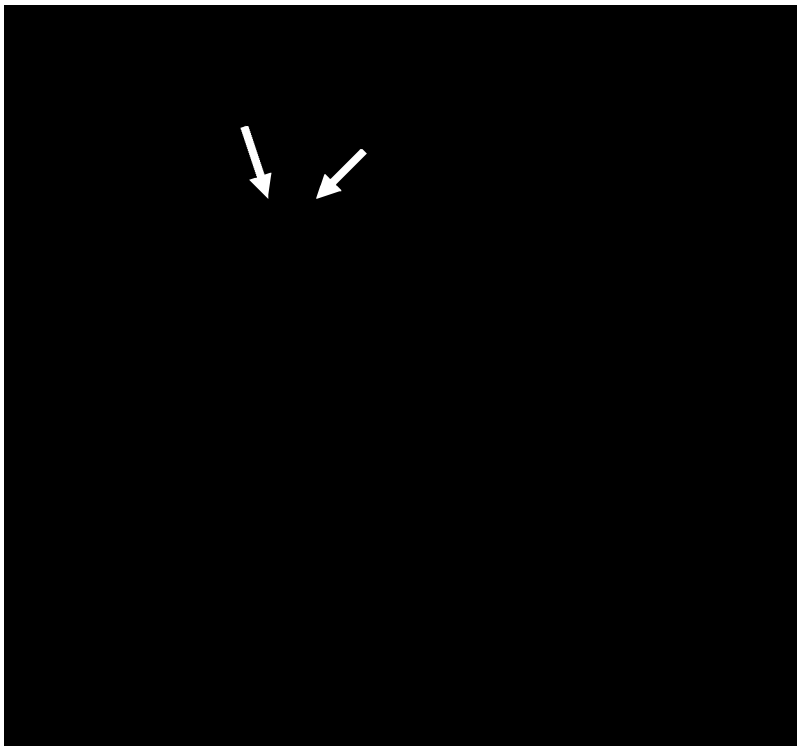

Figure 20B. Subcostal window with echo-poor area adjacent to right ventricle (arrows). This patient had an epicardial fat pad, not a pericardial effusion.

An epicardial fat pad usually contains low-level echoes that can help distinguish it from pericardial fluid, but occasionally it can appear anechoic and pose a diagnostic dilemma. The use of the parasternal long-axis window may be helpful in these cases (Figure 21).

Figure 21 Video – click this link

Figure 21. Parasternal long axis window. Note the presence of the epicardial fat pad anteriorly which is outlined by the circumferential pericardial effusion.

A pericardial fluid collection will appear on this window as an anechoic region between the posterior wall of the left ventricle and the descending aorta (Figure 22). Epicardial fat pads may also be seen on the parasternal long-axis window, but only anterior to the right ventricle. The presence of a pericardial effusion should be diagnosed very cautiously if there is only an echo-poor space anteriorly.

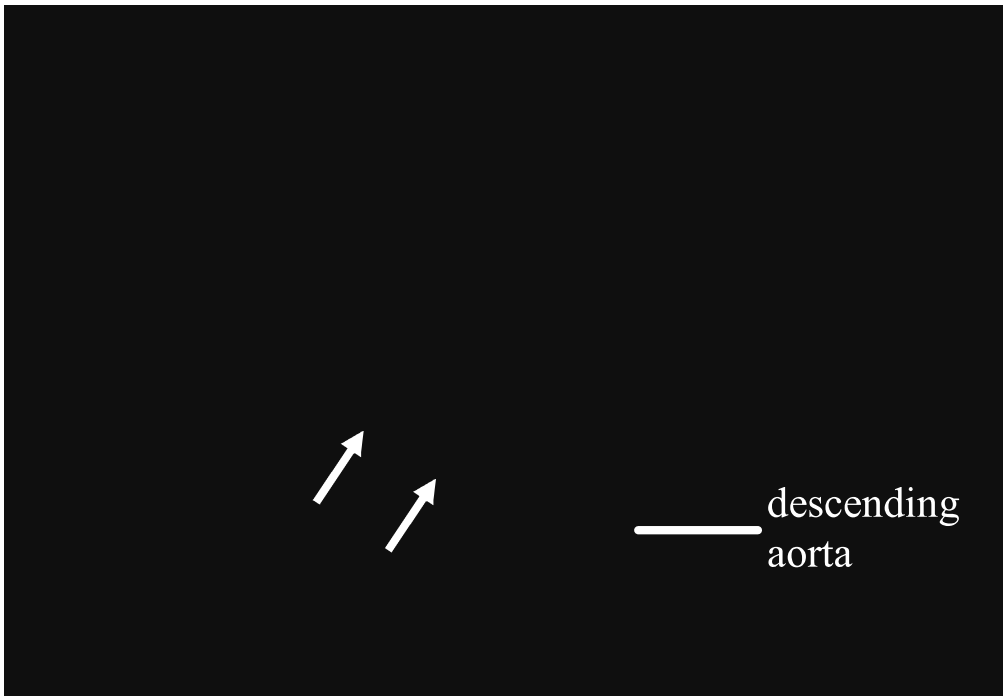

Figure 22. Parasternal long-axis window. Note the presence of a small pericardial effusion (arrows). The pericardial fluid collection is anterior to the descending aorta.

Although the peritoneal and pleural windows are limited on the subcostal window, a large hemothorax or large subphrenic fluid collection can be mistaken for a pericardial effusion (Figures 23-26).[39] The key to preventing this mistake is to always visualize the

hyperechoic pericardium and assess the fluid in its relationship to the pericardium. Fluid is formless and shapeless and must take the shape of the container it is in. The subphrenic fluid collection or pleural fluid collection will not be located within the layers of the pericardium. If a large hemothorax is present and it is causing confusion, rescan the patient after tube thoracostomy drainage has occurred and reassess for a pericardial fluid collection.

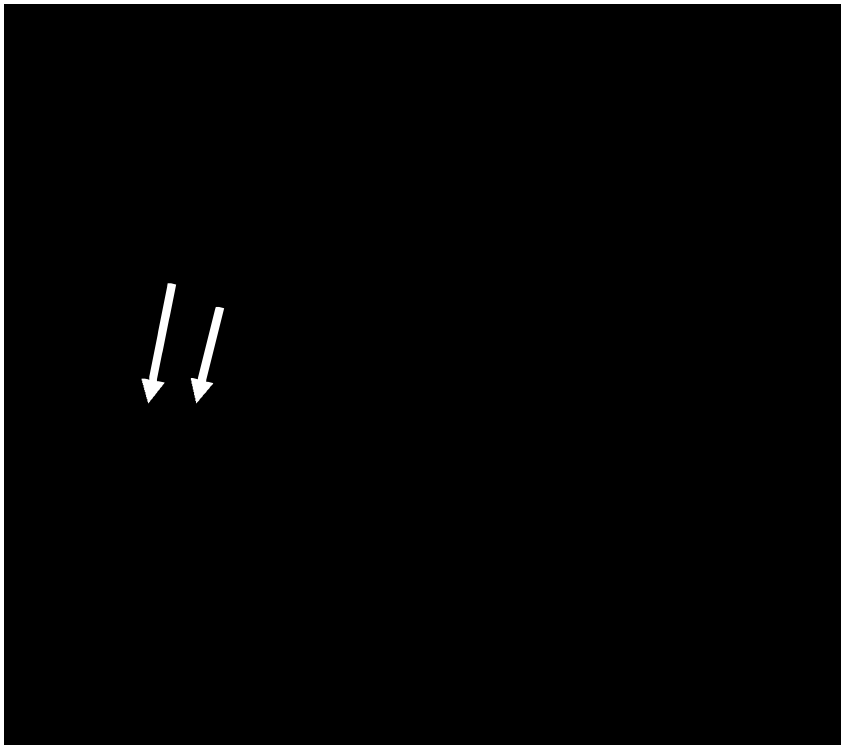

Figure 23. Subcostal window with small right pleural effusion (arrows).

Figure 24. Subcostal window with large right pleural effusion and mild pericardial effusion.

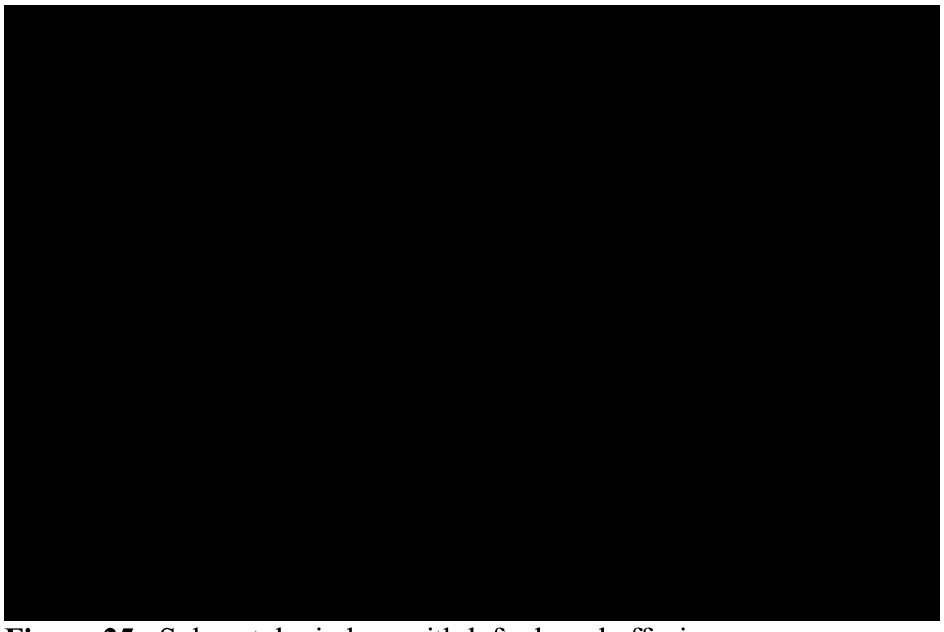

Figure 25. Subcostal window with left pleural effusion.

Figure 26. Subcostal window with subdiaphragmatic fluid collection and pericardial effusion present (arrowheads).

References:

39. Rozycki GS, Feliciano DV, Ochsner MD, et al. The role of ultrasound in patients with possible penetrating cardiac wounds: a prospective multicenter study. *J Trauma* 1999;46:543-552.

72. Tsang TS, Oh JK, Seward JB, et al. Diagnostic value of echocardiography in cardiac tamponade. *Herz* 2000;8:734-740.