

## Portal Venous Air in a Patient Undergoing Hemodialysis

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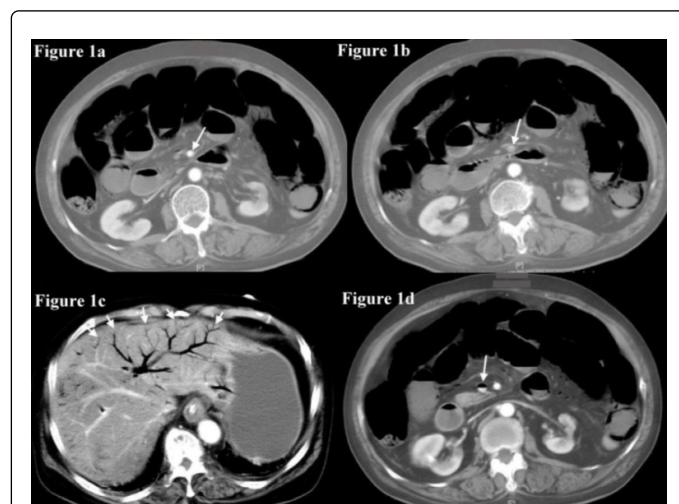
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### Case Report

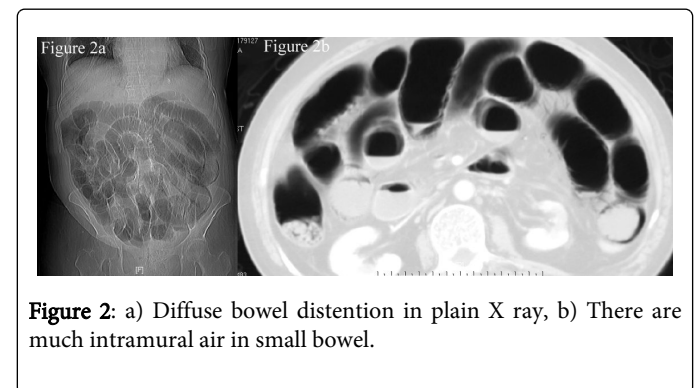
A 80-year-old woman with 20-year-diabetes mellitus (DM), atrial fibrillation (Af), and uremia undergoing ten-year-hemodialysis was presented with sudden abdominal pain for two days. She had been complaining about frequent abdominal pain toward the end of hemodialysis. Her data revealed secondary hyperparathyroidism (HPT) (8 mg/dL of calcium, 7 mg/dL of phosphate, 500 pg/mL of parathyroid hormone), leukocytosis (15000/cumm) and elevated C reactive protein (15 mg/dL). Shock and severe abdominal tenderness occurred after she finished hemodialysis. Her coagulation profile were as follows, 11 seconds of prothrombin time, 25 seconds of activated partial thromboplastin time, 2500000 per microliter of platelet, 25 mg/L of D-dimer (high), and 200 mg/dL of fibrinogen.

Computed tomography (CT) disclosed emboli in superior mesenteric artery (SMA) (Figure 1a and 1b).



**Figure 1:** a) Obvious thrombosis in SMA, b) Patent SMA compared to thrombosed SMA, c) Tree of air extended to peripheral liver, branched out in pneumoportal with extension to within 2 cm of liver capsule, d) Portal venous air.

Air tree extended to peripheral liver (Figure 1c) and portal venous air was detected (Figure 1d). Both of which were the results from enteric necrosis (Figure 2) due to severe bowel distention in plain X ray (Figure 2a) and much intramural air in small bowel (Figure 2b). Since the most common cause of pneumobilia is biliary-enteric surgical anastomosis, and that of portal venous air is enteric necrosis [1], an ominous prognosis is inevitable. Air was located centrally in pneumobilia and branched out portal venous air with extension to within 2 cm of the liver capsule [2]. The outcome between pneumobilia and portal venous air is quite different and clinicians should keep in mind especially in high risk patients. Although Af related emboli was considered the culprit, there are still some risk factors such as DM related arteriopathy and atherosclerosis, secondary HPT, calciphylaxis, and hemodialysis related dehydration, which placed her in the adverse situation. Frequent abdominal pain in the end of hemodialysis gives hint to a long time stenosis of SMA, which is both caused by atherosclerosis and calciphylaxis.



**Figure 2:** a) Diffuse bowel distention in plain X ray, b) There are much intramural air in small bowel.

### References

1. Sherman SC, Tran H (2006) Pneumobilia: benign or life-threatening. J Emerg Med 30: 147-153.
2. Plewa MC (1991) Emergency abdominal radiography. Emerg Med Clin North Am 9: 827-852.