The Presence of Air in the Vein Branches Gate of Hypovolemia, *Case Study*

Healthcare

Keywords: HPVG, ECN, CT examination, Ischemia, SMA Thrombosis, embolism, etc.

Muja, F.		**Hospital Center 'Mother Teresa', Tirana, Albania.**
Demko, V.		**Hospital Center 'Mother Teresa', Tirana, Albania.**
Gjokutaj, A.		**Hospital Center 'Mother Teresa', Tirana, Albania.**

Abstract

The roentgenographic finding hepatit-portal venous gas (HPVG) has been reported extensively in the pediatric and radiology literature. The surgical implications and clinical significance have yet to be fully defined. HPVG appears as a branching radiolucency extending to within 2 cm of the liver capsule. HPVG is associated with necrotic bowel (72%), ulcerative colitis (8%), intra abdominal abscess (6%), small bowel obstruction (3%), and gastric ulcer (3%). Mucosal damage, bowel distention and sepsis predispose to HPVG. The current mortality rate of 75% represents an improvement from previous experience. Analysis of survivors indicates that the finding of HPVG requires urgent surgical exploration except when it is observed in patients with stable ulcerative colitis. In our case the presentation of HPVG is finding at the patient after trauma.. The Patient LL, age 57 appears in front of the emergency service military hospital in serious condition after a trauma with abdominal pain,. In examining the CT the presence of gas in the portal system.

Case Description

The case that we describe is a rather rare case of theoretical and practical interest and the literature of our country has not described such a case yet. The air may be present in the portal veins, mesenteric venis and in the intestinal walls in the cases of:

1. Enterocolitis Necrotizante (ECN). In 10% of cases of enteritis necrotizante in children is met the presence of air in portal veins.
2. In Umbilical Vein Catheterization
3. Eritroblastosis fetal.

To the adults

1. In cases with Mezenteric and Myocardial ischemia
2. **Embolisms during** examination by the double contrast
3. Acute extension of the stomach.

Case Discussion

The patient LL.T from Lezha, aged 57 is presented in the emergency service at a military hospital in serious condition after an automobile trauma.

At the time of arrival the patient is cyanotic with severe abdominal pain and with breathing difficulties. During the CT examination was seen the presence of gas in the portal system and intestinal dilatation.

During intervention with total necrosis of the intestine and thick bowel it was done a resection, there was no blockage of the mesenteric vein and artery.

Diagnosis: mesenteric Ischemia by hypovolemia

Mezenteric and Myocardial ischemia

Mezenteric ischemia is classified in both acute and chronic forms.

Acute ischemia can be caused by:

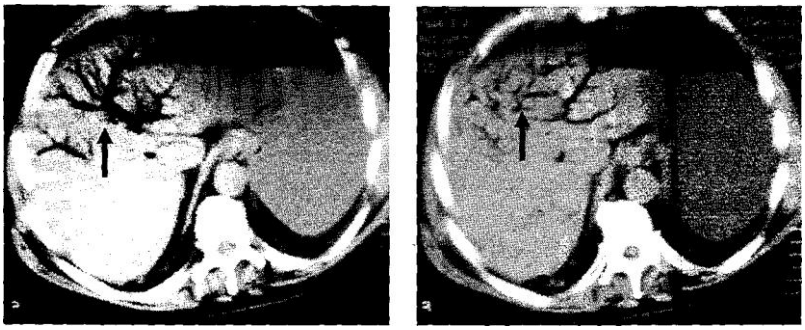
Vascular spasms, prolonged arterial or venous Thrombosis
SMA Thrombosis (Superior mesenteric artery) may be due to embolism from the left ventricle of heart in 50% of cases.

Thrombosis from pre-existing atherosclerotic lesions meets up to 30% of cases. Ischemia by prolonged spasms meets up to 20-30% of cases with acute mesenteric ischemia and is associated with systemic hypotension, cardiac insufficiency, sepsis and systemic administration of adrenergic alpha.

In our case, due to thin and thick bowel necrosis it was not the vascular thrombosis but hypovolemia from traumatic hemorrhage. Acute mesenteric ischemia is associated with high morbidity and mortality. CT angiography, especially with the technique with more layers is appropriate to demonstrate emboline in SMA and branches of the first segment and detect manifest signs of bowel ischemia.

C.T Morphology

Scanner examination focuses on the identification of embolism as well as changes in vascular perfusion. Most embolisms stop almost 3-10 cm from ostium of the SMA and about 15% of embolisms stop in the origin of SMA. Arterial embolisms are recorded in the scanning examination with contrast as filling or interrupting defects of vasal opacification. Often arterial blockage is associated from venous thrombosis because of the course. In this case, there is a lack of mesenteric veins opacification after CT contrast injection. In CT we will have bowel wall thickening from the submucosal hemorrhage. In the scanner images can be evidenced the presence of air in the gate vein, its branches and SMA data to suggest for installation intestine gangrene. While in the early stages of ischemia we may have intence mucosal reinforcement after injection i.v. Fig 1 (a, b)



a. b

Fig. 1 (a, b) CT examination of the patient LL.T where dilatation the peripheral branches is being evidenced of the gate vein by the presence of air in them.

Conclusion

In the examination with CT of our case resulted, as follows: The presence of air in the peripheral branches of gate vein from hypovolemia; intestinal dilatation as a sign of intestinal paresis as a cause for SMA thrombosis.

References

1. Mon RG, Fishbein JF. Portal venous gas in the pediatric age group.
2. Lazar Hp. Survival Following Portal Venous Air Embolization: Report Of A Case. Am J Dig Dis. 1965 Mar; 10:259-264. [PubMed]
3. Mccandless Rg. Portal Vein Gas: A Grave Prognostic Sign. Am J Roentgenol Radium Ther Nucl Med. 1964 Nov; 92:l 162-1165. [PubMed]
4. Musa BU. Intestinal infarction without mesenteric vascular occlusion. A report of 31 cses. Ann Intern Med. 1965 Nov;63(5):783-792. [PubMed]
5. Paciulli J, Jacobson G. Survival following roentgenographic demonstration of gas in the hepatic portal venous system. Am J Roentgenol Radium Ther Nucl Med. 1967 Mar;99(3):629-631. [PubMed]
6. Sachs D, Pogue W. Pneumoportogram in idiopathic intestinal necrosis. Am J Surg. 1966 Feb; 111 (2):269-271. [PubMed]
7. SCHORR S. SMALL-INTESTINAL INTRAMURAL AIR. Radiology. 1963 Aug;81:285-287. [PubMed]
8. Scott JR, Miller WT, Urso M, Stadalnik RC. Acute mesenteric infarction. Am J Roentgenol Radium Ther Nucl Med. 1971 Oct; 113(2):269-279. [PubMed]
9. Sheiner NM, Palayew MJ, Sedlezky I. Gas in the Portal Vein: A Report of Two Cases. Can Med Assoc J. 1966 Sep 17; 95(12):611-615. PMC free article! [PubMed]
10. Sheiner NM, Palayew MJ, Sedlezky I. Gas in the portal vein: a report of two cases. Can Med Assoc J. 1966 Sep 17;95(12):611-615. PMC free article! [PubMed]
11. Shaw A, Cooperman A, Fusco J. Gas embolism produced by hydrogen peroxide. N Engl J Med. 1967 Aug 3; 277(5):238-241. [PubMed]
12. Sibbald WJ. Sweeney JP,, Inwood MJ. Portal venous gas (PVG) as an indication for heparinization. Am J Surg. 1972 Nov; 124(5):690^693. [PubMed]
13. Speer CS, Carlson DH. Portal venous air with survival in ulcerative colitis: report of a case. Dis Colon Rectum. 1972 Nov-Dec; 15(6):453-^58. [PubMed]
14. STEWART JO. Portal gas embolism: a prognostic sign in mesenteric vascular occlusion. Br Med J. 1963 May 18; 1 (5341): 1328-1329. PMC free article! [PubMed]
15. Stewart JOR. Portal Gas Embolism: a Prognostic Sign in Mesenteric Vascular Occlusion. Br Med J. 1963 May 18; 1 (5341):al310.4-1329. PMC free article! [PubMed]
16. SUSMAN N, SENTURIA HR. Gas embolization of the portal venous system. Am J Roentgenol Radium Ther Nucl Med. 1960 May;83:847-850. [PubMed]
17. Swaim TJ, Gerald B. Hepatic portal venous gas in infants without subsequent death. Radiology. 1970 Feb;94(2):343-345. [PubMed]
18. Tedesco FJ, Stanley RJ. Hepatic portal vein gas without bowel infarction or necrosis. Gastroenterology. 1975 Jul. [PubMed]