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Portal Venous Thrombosis and Splenic Hemangioma, Secondary to Acute Pancreatitis: Case Report

Gustavo Adolfo Hernández Valdez[1], Harvey Yair Zamora Veliz[2], Estefany Gilberty Mendoza Verdin[2], Quitzia Mayanim Rentería Fonseca[2], Itzel Velázquez Viniegra[2], Janette Alejandra Gamiño Gutierrez[3], Diana Rita Velázquez Jimenez[2], Florencio Favian Andrade[2], Luis Fernando Baez Bustos[2], Jorge Morales Rojas[1], María Jacqueline Martínez Tejeda[1], Graciela Gaddy Robles Martínez[1], Juan Antonio Contreras Escamilla[1]

[1]Departamento de Medicina Interna, ISSSTE Tepic General Hospital APP, Tepic, Nayarit, México
[2]General Surgery Department, ISSSTE Tepic General Hospital APP, Tepic, Nayarit, México
[3]Hospital Civil Fray Antonio Alcalde, Guadalajara, Jalisco, México
Email: gushdzval96@gmail.com, doctorzamora26@gmail.com

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Abstract

We present an unusual case of portal vein thrombosis with a splanchnic hemangioma secondary to acute biliary pancreatitis. We report a 45-year-old patient, who has systemic arterial hypertension in treatment, was admitted for abdominal pain in the epigastrium, with irradiation to the right hypochondrium, accompanied by nausea and vomiting of 10 occasions of bile content, physical examination with pain in the right hypochondrium, Murphy positive. We have laboratory studies with a lipase of 788, so a diagnosis of pancreatitis is made with an etiology to be determined. The laboratories suggestive of acute biliary pancreatitis (lipase 788.71); an imaging study was subsequently performed (ultrasonography) with the result of stone in the common bile duct. A laparoscopy was performed with relative improvement, so he was discharged and returned 20 days after surgery due to abdominal pain of the same intensity in the left hypochondrium. Ending his hospitalization with a splenectomy for splenic hemangioma with portal vein thrombosis.

Keywords

Pancreatitis, Esplenic Hemangioma, Esplenectomy, Portal Vein Thrombosis, Surgery

1. Introduction

Acute pancreatitis (AP) is a common condition with a very variable disease pres-

entation, clinically and morphologically, causing significant morbidity and mortality in severe cases [1].

The diagnosis of AP is made when two of the following three features are present: 1) characteristic pain in the upper abdomen; 2) amylase and/or lipase three times the institutional upper limit of normal; and 3) imaging findings consistent with AP. The severity of PA disease is variable: between 75% and 80% have a relatively mild clinical course with a rapid response to conservative management, resulting in complete recovery and a short hospital stay [1].

The term portal venous thrombosis (DVT) should refer to thrombosis that affects only the portal trunk, extending or not to the intrahepatic portal branches [2].

Portal thrombosis is found in approximately 1% of autopsies. In most cases, this thrombosis is related to cirrhosis or liver neoplasms and in only a third of cases it is attributable to a non-cirrhotic and non-tumor origin [2].

Meta-analyses showed a pooled Splanchnic vein thrombosis (SVT) prevalence of 13.6% in pancreatitis. According to the stage of pancreatitis, the pooled prevalence of SVT was 16.6% and 11.6% in patients with acute and chronic pancreatitis, respectively. According to the causes of pancreatitis, the pooled prevalence of SVT was 12.2% and 14.6% in patients with hereditary and autoimmune pancreatitis. Depending on SVT location, the combined prevalence of portal vein, splenic vein, and mesenteric vein thrombosis was 6.2%, 11.2%, and 2.7% in pancreatitis. The prevalence of SVT in pancreatitis was 16.9%, 11.5% and 8.5% in Europe, America and Asia, respectively [3].

Thrombosis of the splanchnic circulation secondary to acute pancreatitis is an entity that has gradually become more relevant to this pathology. The incidence is variable, estimating a prevalence of 10.2% to 17.4% in cohorts with intentional search [4].

The clinical manifestations of splanchnic thrombosis depend on the affected vascular territory. Portal thrombosis: usually accompanying the episode of acute pancreatitis, beyond being able to present silently, persistent or exacerbated abdominal pain after the acute moment of pancreatitis can guide us to the diagnosis. The presentation of fever and dyspepsia, accompanied by pain with a palpable liver edge, is compatible with acute distension of the capsule and make us suspect a possible acute portal thrombosis [4].

Splenic thrombosis: frequently is the one that presents the least signs and symptoms of all, recently appeared splenomegaly is characteristic, described as even more pronounced than in patients who already had a diagnosis of portal hypertension [4].

The diagnosis of acute DVT should be suspected in all patients with recent abdominal pain; especially if you are known to have an underlying prothrombotic disease. Likewise, chronic DVT must be ruled out in all patients with portal hypertension [3].

Abdominal Doppler ultrasound performed by an experienced physician informed about the suspicion of the condition is the technique of choice due to its

high sensitivity and absence of side effects. The diagnosis is demonstrated by the absence, stasis, turbulence, flow reversal, or presence of solid echogenic material within the portal vein. In addition, it allows assessing the existence of collateral vessels and splenomegaly [3].

The objective of this report was investigation of splenic hematoma, it was secondary to splenic hemangioma or pancreatitis since splenic hemangioma was not observed in the first figures or during surgery (**Figure 1**).

2. Case Report

A 45-year-old male patient with a history of systemic arterial hypertension (SAH) under medical treatment, was admitted to the emergency department on 12/27/2021 due to abdominal pain in the epigastrium, with irradiation to the right hypochondrium, accompanied by nausea and vomiting of 10 occasions of bile content, physical examination with pain in the right hypochondrium, Murphy positive.

Laboratory studies were performed with amylase 297 IU/L, lipase 788.71 U/L, Glucose 390.90 mg/dL, Alkaline phosphatase 164 IU/L, Total bilirubin 1.45, mg/dL, Direct bilirubin 0.49 mg/dL, Indirect bilirubin 0.96 mg/dL, Gamaglutamine 87 IU, leukocytes 11.86 × 10^3/uL, Neutrophils 88.6%.

Ultrasonography (USG) of the liver and bile ducts was performed finding Gallbladder with presence of biliary sludge in its lower part, stone diameter of approximately 4 mm, common bile duct of 6.2 mm. Spleen of correct morphology without evidence of splenomegaly.

The patient was admitted to the general surgery service with mild acute pancreatitis of biliary origin and acute lithiasic cholecystitis, medical treatment was given and the pancreatitis condition was resolved and a laparoscopic cholecystectomy was performed, finding the gallbladder under tension, 35 cc of bile content was punctured, parkland 2, with no incidents during the procedure, he was discharged 24 hours after surgery. On 01/19/2022, he went to the emergency department again due to abdominal pain at the level of the left hypochondrium,

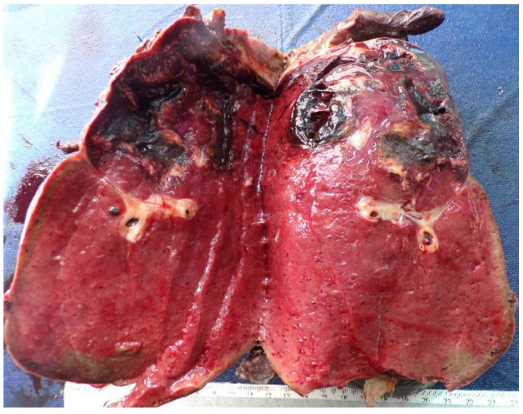

Figure 1. Splenectomy with 1800 mg cross section measuring 22 × 17 × 12 cm with necrotic areas. Necrotic areas are observed in the upper portion.

an increase in temperature quantified at 38˚C, with the presence of myalgia, arthralgia and bilateral parietotemporal headache. Laboratory studies were performed, finding amylase 185 IU/L, lipase 397.72.71 U/L, Glucose 452.20 mg/dL, Alkaline phosphatase 196 IU/L, Total bilirubin 0.38, mg/dL, Direct bilirubin 0.22 mg/dL, Indirect bilirubin 0.17 mg/dL, Gamaglutamine 87 IU, TGP 10.10 IU/L, TGO 7.6 IU/L, ferritin 419.9 ng/mL, leukocytes 7.33 × 10^3/uL, Neutrophils 66.3%, on physical examination abdomen with surgical wounds on the basis of healing, spleen is palpable below the costal margin, with dullness to percussion, with no other important findings. The patient was admitted to the general surgery service with a diagnosis of mild acute pancreatitis. A computed tomography (CT) scan of the abdomen with triple contrast was requested showing perihepatic fluid, splenomegaly marked with density changes, thickened gastric wall, and free fluid in the abdominal cavity. The pancreatitis condition resolves, the patient is tolerating the oral route, but with persistent abdominal pain. Laboratory studies performed 01/26/22: D-dimer 3614 ng/mL,

An elective splenectomy was performed 16 days after admission, after a vaccination schedule based on *Streptococcus pneumoniae* and *Haemophilus*, due to the continuous pain and splenomegaly that the patient presented, finding.

Digestive endoscopy was performed on 02/11/22 due to a suspected diagnosis of gastric varicose veins, finding an esophagus with normal characteristics and a stomach with mucous membrane of the body and antrum with diffuse erythematous dotting, gastric fundus with submucosal venous cord corresponding to isolated gastric fundic varices IGC-1 and mild acute congestive gastropathy.

Pathology results were received on 02/11/22 (**Figure 2**) with a histopathological

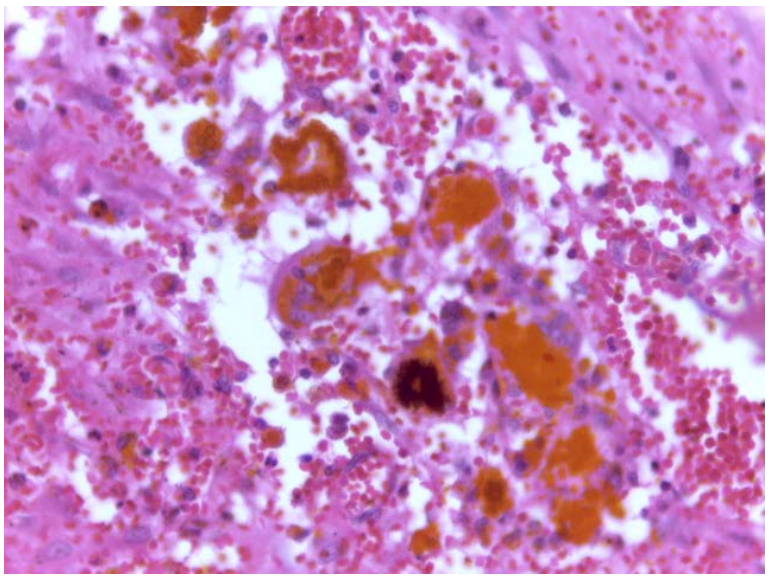

Figure 2. Multiple vascular channels were observed, some of them cavernous in appearance with blood inside, lined by endothelium with normal histological characteristics (simple flat epithelium), without cytological atypia and without mitotic figures. The histopathological appearance is consistent with subcapsular splenic hemangioma.

diagnosis of splenic capillary hemangioma measuring 2.9 × 2 × 2 cm with rupture and formation of a 4.2 mm subcapsular hematoma, splenic parenchyma with ischemic areas associated with thrombosis and splenic chronic passive congestive splenomegaly.

Currently, the patient is stable and is being reviewed every 6 months by an outpatient general surgery clinic in good condition with no complications secondary to surgical procedures.

3. Discussion

D-dimer testing for the diagnosis of thrombosis at unusual sites should not currently be recommended as a first-line diagnostic tool. The development of algorithms that combine biomarkers such as D-dimer and clinical decision tools could improve diagnosis [5].

Splenic hemangioma is the most common benign neoplasm of the spleen in adults, most frequently in ages 35 to 55 years, with no predominance of sex; its clinical behavior is usually indolent, on rare occasions with a palpable mass in the left flank that can cause early satiety or nonspecific abdominal pain due to displacement of adjacent viscera. In more severe conditions, it causes symptoms from cell sequestration inside (Kasabach-Merritt syndrome) or acute abdomen after its spontaneous rupture [6].

Every patient with thrombosis is a patient who requires two lines of management: prevention of complications derived from the clot and behavior to prevent a new episode of formation [4].

A meta-analysis that included 8353 patients in seven studies carried out until December 2020 that compared the use of therapeutic anticoagulation in splanchnic thrombosis, resulted in an RR 1.95 (95% CI 0.98 - 3.88; $I^2 = 0\%$; $p = 0.06$) for hemorrhagic complications between the anticoagulated and non-anticoagulated groups, without being statistically significant. Mortality between both groups was reported with a RR 2.02 (95% CI 0.85 - 4.8) being not statistically significant for the risk of mortality due to a wide confidence interval and a RR 1.6 (95% CI 1.17 - 2.27; $I^2 = 0\%$; $p = 0.004$) in terms of vascular recanalization. The analysis demonstrated that, among patients with AP-associated splanchnic vein thrombosis, therapeutic anticoagulation resulted in recanalization of the involved vessels without significantly increasing the risk of hemorrhagic complications. There were no differences in the RR of death or in the rates of collateral vessel formation during follow-up [7].

In the last decade, the mortality rate from acute DVT has decreased from 30% to approximately 10%. Early diagnosis and anticoagulation are probably the main determinants of improved survival, through prevention or rapid relief of superior mesenteric vein thrombosis. The development of portal hypertension can be prevented if the trunk of the portal vein and at least one of its two branches achieve patency, and this goal can be achieved in up to 40% of patients treated with anticoagulants within the first weeks from onset of acute symptoms.

Currently, 5-year survival in patients without previous liver disease is around 85% and mortality is mainly related to postoperative complications or underlying diseases [8].

4. Conclusions

The primary treatment of acute portal vein thrombosis is anticoagulation and, when possible, treatment of predisposing conditions. The objective of anticoagulation is to prevent the extension of the clot and allow recanalization so that intestinal infarction or portal hypertension does not develop.

In this case, our patient found a splenic hemangioma where clinical improvement was obtained when a splenectomy was performed when changes in the morphology of the wall were found, as well as a hematoma, with resolution of pain completely. Therefore, our first hypothesis was that the patient presented pain due to a splanchnic thrombosis along with a rapidly growing hemangioma since the first two figures did not show splenomegaly and during surgery, no growth of the spleen or any change in the morphology of the spleen was observed.

Although the distal portion of the tail of the pancreas is closely related to the course of the splenic vessels, rupture of the spleen is an unusual complication of acute pancreatitis that should be included in the differential diagnosis of shock during its evolution. Investigation of the splenic hematoma continues, it was secondary to splenic hemangioma or pancreatitis.

Early detection leads to timely management, which has shown structural improvement, but now without clear evidence of a reduction in mortality.

Ethical Considerations

The authors declare that they have met all ethical responsibilities regarding data protection, right to privacy and informed consent.

Authorization from the institution's ethics committee is not necessary since at no time do they fail to comply or violate patient anonymity rules, nor is any experimental procedure performed that puts the patient's integrity at risk.

The authors declare that this article does not contain personal information that would allow the patient described to be identified, which makes the patient's informed consent unnecessary for the publication of the article.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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