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RESEARCH ARTICLE

SEVERE ACUTE PANCREATITIS REVEALING THROMBOTIC THROMBOCYTOPENIC PURPURA: A CASE REPORT AND REVIEW OF LITERATURE

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Abstract

Acute pancreatitis is an inflammatory condition marked by localized tissue damage that may lead to a broader inflammatory reaction. There is growing evidence that patients with a severe form of acute pancreatitis have endothelial dysfunction as one of the key pathophysiologic symptoms. In line with this, there have been new studies linking acute pancreatitis to the hematological condition thrombotic thrombocytopenic purpura (TTP).Here, we are describing a rare conversive event in which severe pancreatitis led to thrombocytopenic purpura.

Introduction:-

Thrombotic thrombocytopenic purpura (TTP) is a multisystemic disease of vascular origin that can involve all organs through thrombotic occlusions of their vasculature. According to Moschcowitch (1925)(1) the diagnosis of TTP is well codified and must meet at least 3 criteria including microangiopathic haemolyticanaemia, thrombocytopenia and acute renal failure; other signs help to support this diagnosis, notably the presence of fever and neurological disorders such as confusion. The best therapeutic solution at present is plasmapheresis. In view of the particularly rare clinical presentation, the authors have taken the liberty of reporting a clinical case of severe acute pancreatitis revealing thrombotic thrombocytopenic purpura.

Case Report:

60 year old patient, treated for urinary lithiasis and operated for a double J urinary catheter a week ago, without any other particular history, admitted to the emergency room for management of circulatory instability. The clinical examination revealed an obnubilated patient with a GCS of 13/15, isochoric pupils, without any deficit or notion of convulsions. On the hemodynamic state, we found a low blood pressure of 70/50 and tachycardia of 108bpm with signs of peripheral hypoperfusion, Finally, on the respiratory level, he was tachypneic at 24c/min, saturating at 94% in free air with normal auscultation. He also showed slight epigastric sensitivity, multiple petechial lesions, a splenomegalic lesion and a sub-icterus. The temperature was 38.5°C with a capillary blood sugar level of 2.9g/l. The diagnosis strongly suspected at this stage was septic shock with a urinary origin. Our initial conditioning was based on oxygen therapy and serum filling which was ineffective, requiring the use of vasopressor therapies. Once stabilized, we started a complete blood count, which showed a normocytic normochromic anemia at 11.2 g/dl with a high reticulocyte count, a hyperleukocytosis at 19,000 el associated with a deep thrombocytopenia at 8,000 el. The hemostasis exam was strictly normal with a PT of 107%. The hydroelectrolytical exam showed acute renal failure, as well as stigmata of haemolysis including free bilirubin and high LDH. The ECBU did not show leukocyturia and its culture was sterile. A lipasemia requested in front of the epigastric sensitivity had come back to 15 times normal. We had thus opted for the realization of an abdominal scanner objectifying a pancreatitis stage D. The platelet count

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was unchangeable and the introduction of corticosteroids, in the face of the unavailability of plasmapheresis, allowed a spectacular evolution of the latter.

Discusison:-

A uncommon prothrombotic illness called thrombotic thrombocytopenic purpura (TTP) is typically characterized by the pentad of neurological symptoms, renal failure, thrombocytopenia, microangiopathic hemolytic anemia, and fever(2).Because of either a congenital absence of the ADAMTS-13 protease enzyme or the development of antibodies against it, thrombocytopenic purpura lacks this enzyme (acquired).The von Willebrand factor-cleaving protease enzyme, also known as ADAMTS-13, breaks down the extremely large von Willebrand factor (VWF) multimers that are released from the subendothelium following endothelial activation or injury(3).

Extensive platelet aggregation, caused by the buildup of ultra-large VWF multimers, occurs in the vascular system of several organs and may clinically present as neurological issues, renal failure, and myocardial ischemia(4).It is widely known that TTP can cause acute pancreatitis by causing ischemic damage(5).

The instance provided offers more proof for the considerably less common converse phenomenon, according to which acute pancreatitis can cause TTP.A normal full blood count at presentation, the improvement of the pancreatitis at the time the TTP was presented, and the discovery of a different, very clear cause of pancreatitis in the form of gallstones all provide evidence for the role of acute pancreatitis as an etiological trigger (rather than effect) of TTP(6).

A systemic inflammatory response syndrome brought on by acute pancreatitis is characterized by the dysregulated release of many cytokines, such as TNF-a, IL-6, and IL-8 (7).It has been demonstrated that these cytokines may raise the risk of TTP through accelerated secretion of ULVWF multimers and rendering these ULVWF multimers resistant to protease activity [28], in addition to a non-immune mediated catabolic effect on ADAMTS 13 levels . Furthermore, the inflammatory state may increase the risk of TTP by activating the complement system, which causes microvascular damage and a loss of thromboresistance (8).Nitric oxide (NO) may possibly have a role in the thrombocytopenic purpura that develops after acute pancreatitis (9).

Endothelial NO can act as a potent platelet anti-aggregator and a vasodilator, maintaining the patency of the vasculature.

Evidence suggests that severe pancreatitis decreases pancreatic endothelial NO synthase, which may make thrombocytopenic purpura or another thrombotic microangiopathy more likely to develop(9).

The use of plasma exchange, even in the absence of ADAMTS 13 deficiency, would in theory allow some of these pathogenetic pathways to be reset. In practice, it is likely that there is a complicated interplay of components at play.The example given, in which plasma exchange was delivered successfully despite a normal ADAM-TS 13 activity, supports this.

Our literature research provides additional support for the effectiveness of plasma ex-change (PEX) therapy. Among the 25 cases identified(5), 22 patients received plasma ex-change therapy, which resulted in the remission of the TTP in all but one case.

When treating acquired TTP acutely, corticosteroids should be begun concurrently with PEX(10)(11).It is thought that steroids prevent the development of anti-ADAMTS13 autoantibodies.

The foundation for this understanding, however, has not been supported by clinical trials.Prednisone 1 mg/kg per day is started as the initial treatment for acquired TTP in all patients.

Nonetheless, we consider increasing the immunosuppression in patients who are critically ill and refractory, who are clinically unstable, or who have neurologic signs.

An IV methylprednisolone randomized experiment comparing a lower dose (10 mg/kg per day for 3 days) to a larger dose (1 mg/kg per day) showed noticeably better remission rates for the latter(12).We take into consideration giving

high-dose methylprednisolone, 1 g per day for three days, to patients who continue to experience clinical deterioration while receiving conventional corticosteroid doses(12).

Conclusion:-

TTP is a rare condition with an obscure pathogenesis. The association of PTT and acute pancreatitis is known to be of low prevalence. It is difficult to establish their causal relationship. The mechanism of pancreatic injury in PTT is thought to be damage to the pancreatic circulation by thrombotic occlusion of small vessels and subsequent ischaemia. Plasmapheresis has become the cornerstone of PTT therapy, the benefit of which appears to be related more to the provision of fresh plasma than to the removal of the patient's plasma. Other therapies have been developed to treat PTT. Plasmapheresis has become the cornerstone of TTP therapy, the benefit of this treatment seems to be more related to the provision of new plasma than to the removal of the patient's own plasma. Other adjuvant therapies used are anti-platelet agents such as dipyridamol or aspirin. Steroids are still used in TTP, mainly for historical reasons. Some authors use corticosteroids only if plasma exchange alone fails.

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