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Spontaneous Hemoperitoneum - Secondary to Acitrom

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KEYWORDS

ACITROM

LAPAROTOMY

HEMOPERITONEUM

ABSTRACT:

Introduction : Spontaneous hemoperitoneum is defined as intraperitoneal bleeding without trauma or iatrogenic cause. It is a rare but potentially fatal complication of anticoagulant therapy. Acitrom (Nicoumalone) is a vitamin K antagonist used for long-term oral anticoagulation in conditions such as Mechanical heart valves , Atrial fibrillation ,Venous thromboembolism . Excessive anticoagulation (INR > therapeutic range) increases the risk of spontaneous bleeding, including into the peritoneal cavity. Presentations may be vague or acute, ranging from abdominal pain, distension, hypotension to shock. Early recognition, appropriate imaging and INR reversal are vital for effective management.

Case Report : A 40 year old male admitted with complaints of abdominal pain and abdominal distention , with a history of mitral valve replacement on Acitrom and was not on follow up. Contrast Enhanced Computed Tomography (CECT) Abdomen showed moderate hemoperitoneum and edematous, dilated and thick jejunal loop with luminal narrowing . Patient was subjected to exploratory laparotomy . This case highlights the importance of anticoagulant drug therapy induced hemoperitoneum and emphasizes its distinction from other differential diagnoses

Conclusion : Spontaneous hemoperitoneum is a rare but life-threatening complication of anticoagulation therapy with Acitrom. This case highlights the importance of close monitoring of INR levels, particularly in elderly patients or those withcomorbidities. Prompt recognition, reversal of anticoagulation, hemodynamic stabilization, and surgical or conservative management based on bleeding severity are critical to improving outcomes.

INTRODUCTION :

Intra-abdominal haemorrhage from non- traumatic cause is called spontaneous hemoperitoneum. Though rare, acitrom is known to cause hemoperitoneum which can be life threatening. Acitrom, used in the prevention of thromboembolic events is a safe drug but has a dose dependent toxicity due to its narrow therapeutic range and inter-individual variation(1). Bleeding is the major complication of anticoagulant therapy(2). The purpose of this case report is to highlight the outcomes of unmonitored long term anticoagulant drug therapy.

CASE PRESENTATION :

A male patient in his early 40s came to the casualty with complaints of abdominal pain and distension which was insidious in onset and was gradually increasing in intensity. Patient did not give any history of vomiting, fever or trauma. Patient was a known case of rheumatic heart disease on treatment. He underwent balloon mitral valvotomy done in 1998 and mitral valve replacement done in 2011. He was on tablet Acitrom, Digoxin and Verapamil and was initially on regular follow-up at the hospital for the first seven years after surgery. However, over the past three years, the patient has continued the above medications regularly but has not followed up with the doctors and has not undergone any blood investigations either. On examination, patient had pallor, with tachycardia of 110/min, blood pressure of 110/60 mmHg and Spo2: 90% under room air. On auscultation valvular click was noted .Per abdominal examination showed diffuse abdominal tenderness ,

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abdominal distension and guarding . Bowel sounds were sluggish and on per rectal examination there was faecal staining .

INVESTIGATIONS:

Routine blood investigations showed Hemoglobin 5 gm/dl, PT 1.67 INR 15.4, Urea: 83 mg/dl and Creatinine: 3.1 mg/dl. Chest x-ray was done and showed artificial valve (figure 1), ECG and Echo were normal. Contrast Enhanced Computed Tomography (CECT) Abdomen showed moderate hemoperitoneum(figure 2) and edematous, dilated and thick jejunal loop with luminal narrowing (figure 3).

DIFFERENTIAL DIAGNOSES :

1. Hepatic and Splenic Causes:

- Hepatocellular carcinoma rupture
- Adenoma or hemangioma rupture
- Spontaneous rupture of splenic artery aneurysm
- Splenic rupture (atraumatic - e.g. mononucleosis, malaria, leukemia)

2.Vascular Causes:

- Ruptured abdominal aortic aneurysm (rarely leaks into peritoneum)
- Visceral artery aneurysm rupture (splenic, hepatic, mesenteric)
- Spontaneous bleeding due to vasculitis or connective tissue disorders (e.g., Ehlers-Danlos syndrome)

3.Neoplastic Causes:

- Rupture of abdominal or pelvic malignancy (e.g., hepatocellular carcinoma, GISTs, ovarian tumors)

4. Gynecologic Causes (especially in women of reproductive age):

- Ruptured ectopic pregnancy
- Ruptured corpus luteum cyst (especially in anticoagulated patients)
- Ovarian torsion with hemorrhagic infarction
- Endometriosis with hemorrhage

TREATMENT :

Patient was kept on nil per oral with continuous ryles tube drainage, started on Intravenous fluids and Intravenous antibiotics. Fresh Frozen Plasma and Inj. Vitamin K were given. Two units of packed cell were transfused. INR came down to 1.3. Patient then started to develop dyspnea and tachypnoea due to significant abdominal distension. Therefore, patient was subjected to exploratory laparotomy. Intra operative findings showed about three litres of blood drained from the peritoneal cavity (hemoperitoneum). Mesenteric hematoma was identified with congestion of distal ileum(figure 4,5a and 5b). Small bowel and colon found to be viable. Liver, spleen and other organs found to be normal. No active bleeding point noted. Two drains placed and secured. Wound closed in layers. Dressing applied.

OUTCOME AND FOLLOW UP :

Postoperatively patient was stable and was started on Intravenous antibiotics and fluids . Postoperatively , Inj. Heparin 5000 IU IV Q 6th hourly was started. Daily monitoring of PT and INR were done. He was started on Tablet Warfarin and Inj.Heparin was stopped . The PT and INR were within normal limits. Hemoglobin, urea and creatinine values returned to their normal range. Prior to discharge the patient and his relatives were thoroughly counselled about the anticoagulants and to review regularly in the general surgery, general medicine and in the cardiology outpatient departments .

DISCUSSION :

Acitrom (Acenocoumarin / Nicoumalone) is a coumarin derivative that acts as an anticoagulant and is an antagonist of vitamin K. The action of acenocoumarin is similar to that of other coumarin derivatives such as warfarin by competitively inhibiting Vitamin K epoxide reductase complex(4). They interfere with the liver's ability to process vitamin K. Acenocoumarin inhibits blood clotting by blocking the production of a number of important clotting factors, namely factor II (prothrombin), VII, IX and X, as well as protein–C and protein–S. The

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main difference between these drugs is the duration of action. The half-life of acenocoumarin (Acitrom) is approximately 11 hours as compared to approximately 40 hours for warfarin. As a result, the quality of anticoagulation is subject to more fluctuation with the use of acenocoumarin. Gastrointestinal tract is the most common site of bleeding followed by urinary tract. Bleeding is more likely if therapy is not properly monitored , or when the International Normalised Ratio (INR) exceeds 4 , or interacting drugs / contraindications are present . Patient with mechanical valve on oral anticoagulant have a incidence of 0.34% to 1.32% per patient year for major bleed . 50% Bleeding due to anticoagulation will be major and has a 9.5% of case fatality(3).The dose of Vitamin-K antagonist oral anticoagulant must be individualised by repeated measurement of Prothrombin time. The aim is to achieve a therapeutic effect without unduly increasing the chances of bleeding . The optimum ratio of Prothrombin time during treatment with oral anticoagulant to the normal value (of the testing laboratory) has been defined for various indications . But this value differs depending on the source of the thromboplastin that has been used for the test . A standardised system called the International Normalised Ratio (INR) based on the use of human brain Thromboplastin has been developed by WHO and adopted in all countries.

Factors enhancing effect of coumarin anticoagulants are:

1. Debility, malnutrition, malabsorption and prolonged antibiotic therapy: the supply of vitamin K to the liver is reduced in these conditions.

2. Liver disease, chronic alcoholism: synthesis of clotting factors may be deficient.

3. Hyperthyroidism: the clotting factors are degraded faster.

4. Newborns: have low levels of Vitamin K and clotting factors (there should be no need of these drugs in neonates anyway).

Factors decreasing effect of coumarin anticoagulants are:

1. Pregnancy: plasma level of clotting factors is higher.

2. Nephrotic syndrome: drug bound to plasma protein is lost in urine.

3. Genetic warfarin resistance: the affinity of Vitamin K antagonist warfarin (as well as that of vit K epoxide) to bind to the reductase (VKOR) enzyme, which generates the active vit K hydroquinone is low . Dose of oral anticoagulant is 4 - 5 times higher .

Cases diagnosed early or with limited bleeds can be managed by withholding the anticoagulant . Fresh blood transfusion or fresh frozen plasma may be used as a source of clotting factors . Vitamin K1 which is the specific antidote can be given , but it takes 6 - 24 hours for the clotting factors to be resynthesized and released in the blood after Vitamin K administration . However critical patients with significant bleed and bowel ischemia , undergo laparotomy and the affected segment excised , followed by primary anastomosis or exteriorising , depending on status of the residual bowel loops and general condition of the patient . There has been advent of newer Oral AntiCoagulants (OACs) like Dabigatran , Rivaroxaban , Apixaban and Edoxaban .They have been proved to be more advantageous than Coumarinic anti - coagulants in terms of action , safety profile and predictable anticoagulation . However the cost and lack of antidote prevents their large scale usage .

CONCLUSION :

Spontaneous hemoperitoneum is a rare but life-threatening complication of anticoagulation therapy with Acitrom. This case underscores the importance of close monitoring of INR levels, particularly in elderly patients or those with comorbidities. Prompt recognition, reversal of anticoagulation, hemodynamic stabilization, and surgical or conservative management based on bleeding severity are critical to improving outcomes. Clinicians must maintain a high index of suspicion for intra-abdominal bleeding in anticoagulated patients presenting with abdominal pain and hemodynamic instability.

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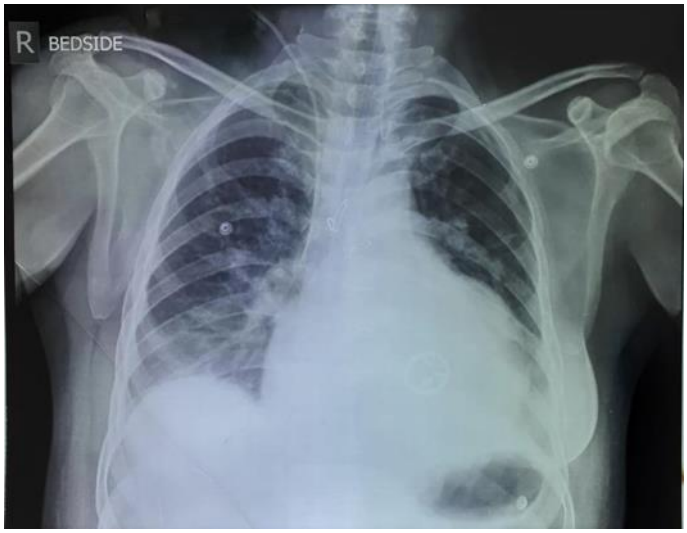

Figure 1: chest X-ray showing artificial valve

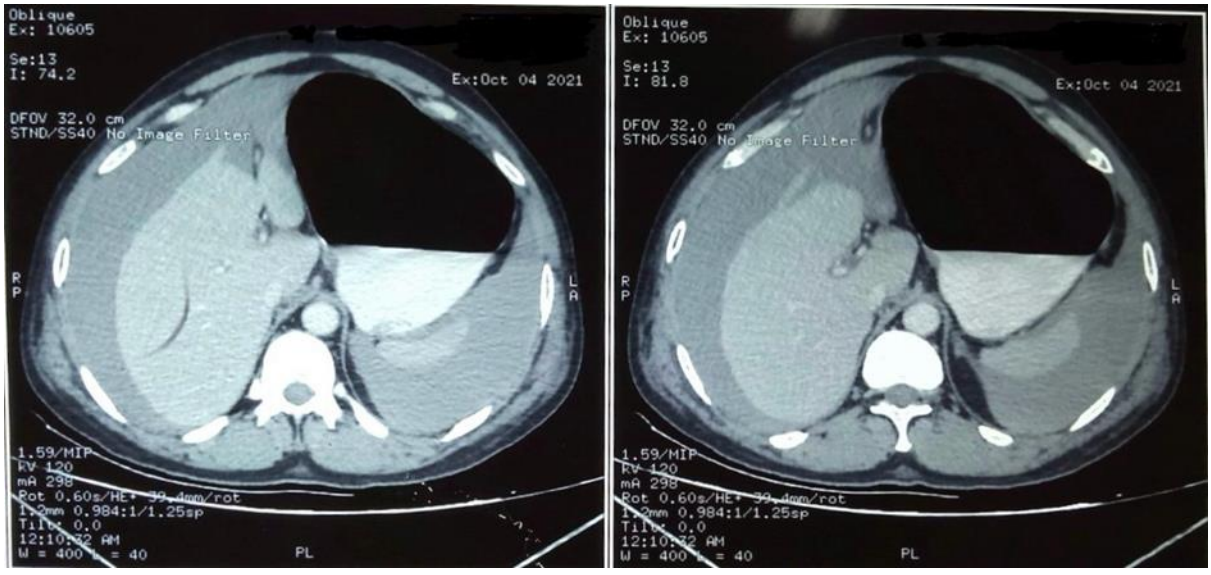

Figure 2: CECT abdomen showing hemoperitoneum

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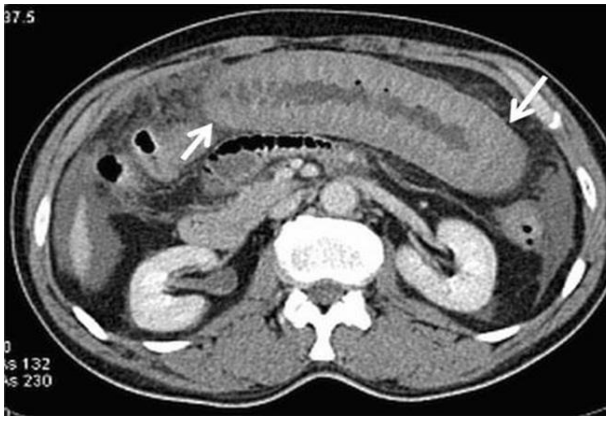

Figure 3:CECT abdomen showing edematous , dilated and thick jejunal loop with luminal narrowing

Figure 4:Intraoperative image showing hemoperitoneum

Figure 5a and 5b:Intraoperative image showing mesentric hematoma