Case Report

Disseminated Intravascular Coagulation: A Medical Menace

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Abstract

Medical negligence suits are on the rise now-a-days. Doctors, who were considered messengers from the God and worshipped, are met with Civil and Criminal negligence cases, thereby leading them to practice defensive medicine. The expectations among patients for complete and dramatic cure, knowledge about recent advances in medicine and awareness of the general public regarding the legal provisions has increased the stress among medical practitioners. There are instances where even known complications of diseases and physiological conditions (after delivery) have been considered as malpractice outcome by patients and relatives. Disseminated intravascular coagulation (DIC), also known as disseminated intravascular coagulopathy or consumptive coagulopathy, is a pathological activation of coagulation (blood clotting) mechanisms that happens in response to a variety of diseases and physiological condition. The present case is one such case where a known complication turns out to be a Doctor's nightmare and the role of medical expert opinion in such cases.

Key Words: Negligence Disseminated Intravascular Coagulation (DIC), Coagulopathy, Malpractice

Introduction:

Medical negligence is defined as breach of duty owed by a doctor to his patient to exercise reasonable degree of skill and care. Once the doctor has obtained requisite qualification, he is expected to acquire skill to treat the patient and exercise good care. Degree of skill and care is not defined but it is assumed that he will exercise reasonable degree of skill care. He may not be the best in the community of doctors but is assumed that he is the average and his expertise should be at least average in his peer group. It is also understood that a doctor may not always knowing the latest is his field but it is expected that he must be aware of new techniques that are coming to his specialty.

For negligence the damage to the patient is essential caused by the Act of omission or Act of commission. In Act of omission there is Failure to exercise reasonable degree of care can cause damages to the patient. In Act of commission damages due to direct effect of treatment. Complications of treatment or any unforeseen accident which might occur during the management of a patient not amounting to negligence, as long as the standard of the treatment and care provided to the patient is reasonable.

Case History:

The treatment records of a female victim admitted in a Private hospital in Jaipur was submitted to the Department of Forensic Medicine, SMS Medical College, Jaipur for perusal and opinion.

As per history the deceased victim was a 28year old married female (G2P1L1) conceived for the second time. She had undergone a previous Caesarean section (LSCS), for indications unknown.

The present pregnancy was uneventful but for nausea and vomiting in the first trimester. She underwent routine antenatal checkups including vaccination. At the end of nine months amenorrhea, she got admitted to the private hospital for intervention. She was worked up with routine investigations including complete haemogram, renal function tests, clotting parameters and USG abdomen which showed a single live intra uterine gestation with adequate liquor and Grade IV Placenta Previa.

After written informed consent and proper preparation she was put under general anesthesia with adequate pre-anesthetic medications. She underwent a brief period of Cardiac arrest while under anesthesia from which she recovered with injection atropine and Cardiac massage. Lower section caesarean section was done as per protocols. A mature female child was delivered and handed over to the Pediatrician.

The victim shortly developed bleeding from the uterus and on examination, the
placenta was found adherent to the uterine walls (Placenta accreta). On trying to remove the adhesion, bleeding increased further. The procedure was stopped and an arrangement for blood transfusion was done. Informed consent from the relatives was taken for Emergency Hysterectomy to control the Post partum Haemorrhage (PPH). After obtaining consent, hysterectomy was done and after securing haemostasis, wound closure was done in layers.

Patient was revived from General anesthesia and shifted to ICU, wherein her general conditions worsened. Her pulse became feeble, and tachycardia set in with tachypnoea and dyspnoea. She was conscious to begin with but later became disoriented and drowsy. Her clotting parameters were altered with increased bleeding time, clotting time, Prothrombin time, Activated Partial Thromboplastin time (APTT) and INR. D-dimer was positive, with increased Fibrin Degradation Products (FDP).

She was given extensive blood (Fresh blood and packed cells) transfusion, with Fresh Frozen Plasma (FFP) and Cryo-precipitate after grouping and cross matching. In spite of the best of efforts, her condition deteriorated and she was shifted to a tertiary care institution the same day, wherein she was operated again to look for any bleeders and after debridement, wound closure was done with drainage tubes left in abdomen and pelvis. She was put under conservative management and observed in the ICU with monitoring of vital parameters. Her blood pressure did not improve in spite the inotropes and she succumbed to death with 24 hours of her Delivery.

The immediate cause of death was certified as ‘Uncontrolled post LSCS bleeding’ with underlying cause as Post LSCS/ Post hysterectomy DIC (Disseminated intravascular coagulation). This led to dissatisfaction among the relatives and huge public outcry. After demonstrations in front of the hospital and the police station, the relatives finally lodged in a police station, the relatives finally lodged in a police station. After perusal of all the records, the Panel opined that the treatment of the patient was proper and as per present guidelines; DIC and PPH could occur even when patient is treated with proper skill and care.

Discussion:

Disseminated intravascular coagulation (DIC), also known as disseminated intravascular coagulopathy or consumptive coagulopathy, is a pathological activation of coagulation (blood clotting) mechanisms that happens in response to a variety of diseases.

The subcommittee on DIC of the International Society on Thrombosis and Haemostasis has suggested the following definition for DIC: "An acquired syndrome characterized by the intravascular activation of coagulation with loss of localization arising from different causes. It can originate from and cause damage to the microvasculature, which if sufficiently severe, can produce organ dysfunction."

This is a clotting and bleeding disorder that results from the generation of tissue factor activity within the blood. This trigger of the coagulation cascade quickly leads to significant thrombin production which perpetuates its own formation. In very little time, the existing regulatory factors such as antithrombin III, protein C, and protein S are consumed. As a result, large amounts of thrombin are generated, leading to a hypercoagulable state. [1]

In the normal physiological state, plasmin is responsible for breaking fibrin into fibrin split products, thereby limiting the amount of fibrin clot being formed. In DIC, the quantity of plasmin is significantly increased, leading to the generation of significant quantities of fibrin degradation products. This often results in bleeding. DIC can occur acutely but also on a slower, chronic basis, depending on the underlying problem. It is common in the critically ill, and may participate in the development of multiple organ failure, which may lead to death.

The salient obstetric causes for DIC are abruptio-placenta, pre-eclampsia, hemolysis, elevated liver enzymes, low platelets (HELLP) syndrome/eclampsia and amniotic fluid embolism.

The affected person is often acutely ill and shocked with widespread haemorrhage (common bleeding sites are mouth, nose and venepuncture sites), extensive bruising, renal failure and gangrene. The onset of DIC can be fulminant, as in endotoxic shock or amniotic fluid
embolism, or it may be insidious and chronic. Decreased levels of antithrombin are correlated with elevated mortality in patients with sepsis. [2]

Diagnosis is usually suggested by following conditions: Severe cases with hemorrhage: The PT and APTT are usually very prolonged and the fibrinogen level markedly reduced. High levels of fibrin degradation products, including D-dimer, are found owing to the intense fibrinolytic activity stimulated by the presence of fibrin in the circulation. There is severe thrombocytopenia. The blood film may show fragmented red blood cells (schistocytes).

Mild cases without bleeding: There is increased synthesis of coagulation factors and platelets. PT, APTT, and platelet counts are normal. Fibrin degradation products are raised. [3]

Definitive diagnosis depends on the result of:
- Thrombocytopenia
- Prolongation of Prothrombin time and activated partial Thromboplastin time
- A low fibrinogen concentration
- Increased levels of fibrin degradation products

The only effective treatment is the reversal of the underlying cause. Prognosis varies depending on the underlying disorder, and the extent of the intravascular thrombosis (clotting).

The prognosis for those with DIC, regardless of cause, is often grim. Disseminated intravascular coagulation (DIC) is a confusing syndrome, because many unrelated diseases can induce DIC, clinical manifestations can vary, there is confusion regarding appropriate laboratory diagnosis, and the guidelines for management with specific available therapeutic modalities are unclear. [4] The diagnostic difficulties result in delayed diagnosis and treatment of DIC cases which further worsen the prognosis. Prompt and adequate and appropriate treatment is necessary to save the life of the patient as well reputation of the practitioner.

References: