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MEDICOLEGAL ASPECTS OF MATERNAL DEATHS DUE TO PULMONARY THROMBOEMBOLISM

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ABSTRACT

A state of hypercoagulability protects pregnant women from bleeding tendency which leads to pulmonary thromboembolism and results in medicolegal issues.

Case 01

32 year old pregnant female who developed weakness of legs, and was suspected to have Spinal Tuberculosis. Lower Segment Caesarian Section was performed and Heparin was started as she was immobile. Vertebral surgery was performed and anticoagulants were stopped. She died due to sudden onset difficulty of breathing. Allegations of medical negligence were raised by the relatives at the autopsy. The autopsy revealed bilateral Deep Vein Thrombosis (DVT) and pulmonary embolism.

Case 02

A mother who presented with a first trimester abortion and pain in right leg died following sudden onset shortness of breath. She also had a history of a previous first trimester abortion. Autopsy revealed an embolus in the pulmonary artery with swollen and congested right leg without DVT.

CONCLUSIONS

Case 01

Regarding the allegations of medical negligence, the legal authorities will consider whether the discontinuation of

prophylactic anticoagulants before the 2nd surgery was a necessity and whether it was for the best interest of the patient.

Case 02

Immunological syndromes and inherited thrombophilia could be considered as underlying causes for multiple first trimester abortions and Deep Vein Thrombosis. The Importance of performing the risk assessment of DVT when indicated is highlighted.

KEY WORDS:

Deep Vein Thrombosis, immunological syndromes, inherited thrombophilia,

INTRODUCTION

The two main embolic conditions that lead to maternal death are pulmonary thromboembolism and amniotic fluid embolism. Pulmonary thromboembolism occurs when a part of a thrombus, usually dislodged from a deep vein thrombus, passes into the pulmonary circulation, occluding the pulmonary arteries^[1]. It is a leading cause of maternal death as the risk of venous thrombosis is increased five-fold in pregnancy^[2].

The state of hypercoagulability which protects pregnant women from bleeding tendency may lead to pulmonary thromboembolism^[2] and result in medicolegal issues such as allegations of medical negligence and ascertainment of the cause of death.

Case 01

A 32 year old pregnant mother developed weakness of legs. A caesarian section was performed and Heparin was started as she was immobile. Spinal tuberculosis was suspected and vertebral surgery was performed and anticoagulants were stopped for the surgery. She developed sudden onset difficulty of breathing and died. Autopsy revealed bilateral DVT and in-situ dissection of the heart showed an embolus extending in to the pulmonary artery (Fig.1). Cause of death was pulmonary thromboembolism due to DVT. Allegations of medical negligence were raised by the relatives at the autopsy.



Figure 1 : An embolus extending in to pulmonary artery

Case 02

A 34 year old mother presented with a first trimester abortion and pain in right leg, died with sudden onset shortness of breath. She also had a history of a previous first trimester abortion. Autopsy revealed an embolus in the pulmonary artery with swollen and congested right leg without DVT. The immediate cause of death was pulmonary thromboembolism but the underlying cause of death was not ascertained. Probable cause of death was pulmonary thromboembolism due to DVT.

DISCUSSION

Venous thromboembolism is one of the leading causes of maternal mortality^[3]. The

incidence of pulmonary embolism during pregnancy is about 1 in 2500^[4]. The maternal mortality is greater than 80% if left untreated and less than 1% if treated early. In about 70% of cases, DVT is the instigating factor^[4].

Case 01

Predisposing factors of DVT found in this case were immobility, hypercoagulable state and vascular trauma due to surgery. In this case, prophylactic heparin was started but was not continued due to the second surgery.

Regarding the allegations of medical negligence, the legal authorities will consider whether the discontinuation of prophylactic anticoagulants before the 2nd surgery was a necessity, whether it was for the best interest of the patient or whether clinicians acted in accordance with accepted practice. 'Bolam test' would be applied for assessing the appropriate standard of reasonable care in negligence cases involving skilled professionals such as doctors. According to the Bolam test, a doctor is not guilty of negligence if he has acted in accordance with a practice accepted as proper by a responsible body of medical men skilled in that particular discipline^[5]. Since the maternal mortality of pulmonary thromboembolism during pregnancy is high, whenever there is doubt, examination and investigation should be started early by clinicians in order to resume anticoagulant therapy^[6]. The 'Inquirer in to sudden deaths' was made aware regarding the alleged potential negligence.

Case 02

When the patient complained of leg pain, DVT had not been suspected probably because of the absence of obvious risk factors. Clinical assessment of pulmonary thromboembolism may be difficult due to nonspecific signs and symptoms, especially in pregnant women^[1].

Further, it is important to perform 'Risk assessment of DVT' when indicated. With

right limb pain, the performance of DVT risk assessment and features such as tenderness, warmth, positive Homan's sign, and a palpable cord over the course of the leg veins had not been elicited by clinicians. Homan's sign, (pain in the calf with dorsiflexion of the foot), is a clinical sign of DVT in the leg veins^[4]. Therefore, the importance of performing 'Risk assessment of DVT' when indicated is reiterated.

Since she had multiple first trimester abortions, immunological syndromes and inherited thrombophilia could be considered as underlying causes for pulmonary thromboembolism.

Immunological syndromes (eg. Antiphospholipid syndrome) may lead to a variety of clinical manifestations due to venous and arterial thrombosis. It is also an important cause of early and late pregnancy deaths and morbidities^[7]. The postmortem diagnosis of immunological syndromes is done by antibody tests.

Inherited thrombophilias are also associated with an increased risk of venous thromboembolism and also have been linked to adverse outcomes in pregnancy^[8]. They are disorders with genetic defects and are detected at the postmortem by paraffin embedded tissues using PCR^[9].

In conclusion, when allegations of medical negligence are raised, the 'Inquirer in to sudden deaths' should be made aware regarding the alleged potential negligence. 'Bolam test' can be applied for legal purposes. If multiple first trimester abortions are found, immunological syndromes and inherited thrombophilias should be considered as underlying causes for pulmonary thromboembolism. Performing 'Risk assessment of DVT' when indicated is highlighted.

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