

SUPINE HYPOTENSIVE SYNDROME

(A Case Report)

by

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A syncopal attack in a pregnant woman could be due to all the causes of syncope in a nonpregnant woman but there are certain changes in pregnancy which in addition lead to syncopal attacks. As a rule, the syncope most frequently occurs in the erect posture both in a pregnant or nonpregnant woman. Syncope in a nonpregnant woman in the lying posture is an extreme rarity. But, in late pregnancy, syncopal attacks not infrequently occur on lying down supine. Such attacks are characterised by palpitation, and feeling of unconsciousness subjectively and objectively, by tachycardia, fall of blood pressure, and syncope, hence named as "Supine hypotensive Syndrome." The relief from these attacks is achieved by turning the patient either to the left or right. It is important to recognise this condition, as it may prove to be harmful to the patient as well as to the foetus if proper measures are not taken to cut short the attack. Once it is recognised, the

management is simple. We had one case who, on getting such attacks, developed anginal pain also which is not a frequent finding. This forms the basis of the present communication.

Case Report

Mrs. S. C., 26 years old, Hindu, attended the antenatal clinic with pregnancy of eight months. The patient was a multipara. She noticed unusual distension of the abdomen this time. When she presented herself to the obstetrician for the usual check-up, she lay supine on the examination table and a few minutes later, for the first time, she developed giddiness, palpitation, profuse perspiration, retrosternal pain and syncope. The pulse rate at that time was 140/min., with blood pressure 70/44 mm. of mercury. She was immediately admitted into the obstetric ward for further observation. On reaching the ward she felt better and remained well throughout the day. Next day she was sent for a cardiovascular check-up. She was first asked to lie on the side and pulse rate and blood pressure were noted. Then she was asked to lie supine for a further examination (Fig. 1). Within a few minutes of lying supine the patient started complaining of giddiness, perspiration, palpitation and retrosternal pain. In addition she also complained of uterine cramps. The pulse and blood pressure were recorded every half minute and electrocardiogram was also taken during the attack. It was observed that within 2 minutes of lying supine she

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developed a feeling of syncope which was associated with rise of pulse rate to 146/min., fall of systolic as well as diastolic blood pressure resulting into narrow pulse pressure (Fig. 1). The electrocardiogram revealed heart rate of 150/min., regular, associated with generalised ST-segment depression (Fig. 2).

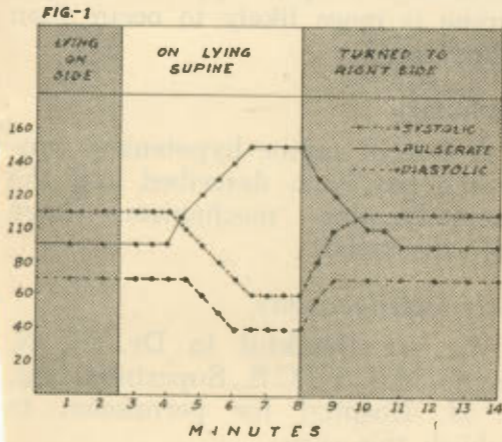


Fig. 1
Blood pressure and pulse record before, during and after supine hypotensive attack.

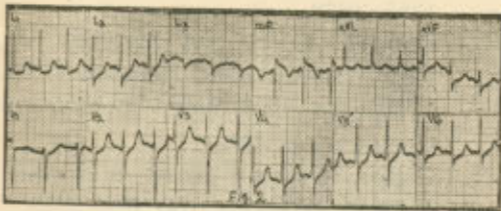


Fig. 2
Electrocardiographic changes during supine hypotensive attack.

The patient was turned to the right and was observed. Pulse and blood pressure were recorded every half a minute; within a minute she started improving. The pulse rate came down rapidly to 90/min. with quick rise of systolic blood pressure (Fig. 1). All the symptoms vanished in a few minutes' time. The electrocardiogram revealed heart rate of 100/min. with reversal of ST-segment changes which were present in the previous electrocardiogram. (Fig. 3).

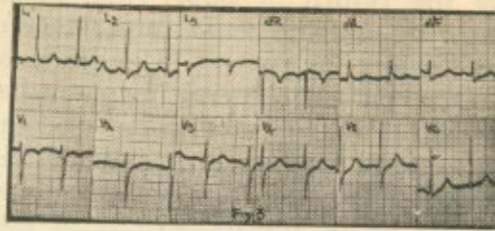


Fig. 3
Electrocardiographic changes in right lateral position.

She further got typical hypotensive attacks whenever she attempted to lie supine in bed. This confirmed the diagnosis of supine hypotensive syndrome. The detailed record of pulse rate, and blood pressure on lying on the side and on the back is shown in Fig. 1.

Discussion

The supine hypotensive syndrome is now a well recognised condition (Howard *et al*). It results when total circulating volume falls below the critical level, resulting in tachycardia, fall in blood pressure and feeling of faintness, because less blood reaches the heart and brain. It is evident that the gravid uterus is a main contributory factor. It presses the inferior vena cava or iliac veins and hence blood is trapped in the lower limbs. It has been shown by Runge, and Burwell that venous pressure in the femoral vein is higher than venous pressure in the upper limbs in a pregnant woman lying supine in bed. Mengert and his associates have shown that elevated femoral venous pressure is diminished when patient turns on her side indicating thereby that pressure from inferior vena cava or iliac veins is relieved. This is further supported

by the return of pulse rate, blood pressure and subjective improvement on turning the patient to either side.

Our patient, during hypotensive attack, developed abdominal discomfort due to uterine cramps, which resulted from the diminished blood supply to the uterus because of less venous return to the heart and marked hypotension. Such a combination of abdominal pain and fall of blood pressure may sometimes lead to erroneous diagnosis of uterine rupture (Howard, Goodson and Mengert).

The anginal pain also reflected myocardial ischaemia consequent upon extreme fall of blood pressure and marked tachycardia. The anginal pain was due to hampered coronary circulation as pain disappeared with the fall of pulse rate and rise of blood pressure.

In the electrocardiogram, ST segment and T-waves changes were non-specific and resulted due to tachycardia and diminished coronary circulation. All the changes were temporary and disappeared with the improvement in blood pressure and return of pulse rate to normal level.

The unusual distension of abdomen was thought to be due to excessive amount of amniotic fluid, which further contributed to the occurrence of this syndrome. The hypotensive syndrome is more likely to occur in cases with twin pregnancy and hydramnios. These probably cause more pressure over the vena cava than a normal gravid uterus. Another contributory factor is salt restriction in

cases of pre-eclampsia because salt restriction may be overdone by the patient, which may result in reduction in effective circulating blood volume. In such cases even if small amount of blood is trapped in the lower limbs, supine hypotensive syndrome is more likely to occur than otherwise.

Summary

A case of supine hypotensive syndrome has been described and the haemodynamic mechanisms have been discussed.

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